0496

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International Specialists in the Environment

MEMORANDUM

TO: Ginny Cummings, EPA Region IX Site Assessment Manager

FROM: Jim James, Ecology and Environment, Inc. JMJ

DATE: March 15, 1990

SUBJECT: Completed Work

cc: Marcia Brooks, E & E, Inc.

Attached is the following completed:

PA___ PA Review___ SSI X LSI___ SIRe___

Other_____

Site Name: Cosden Oil and Chemical Company

EPA ID #: CAD000097634

City, County: Orange, Orange County

FOR EPA USE ONLY

CERCLIS Lead: EPA
SSI-1 Complete WFRAP
mwc 3/29/90

3/29/90

>/>/cwm

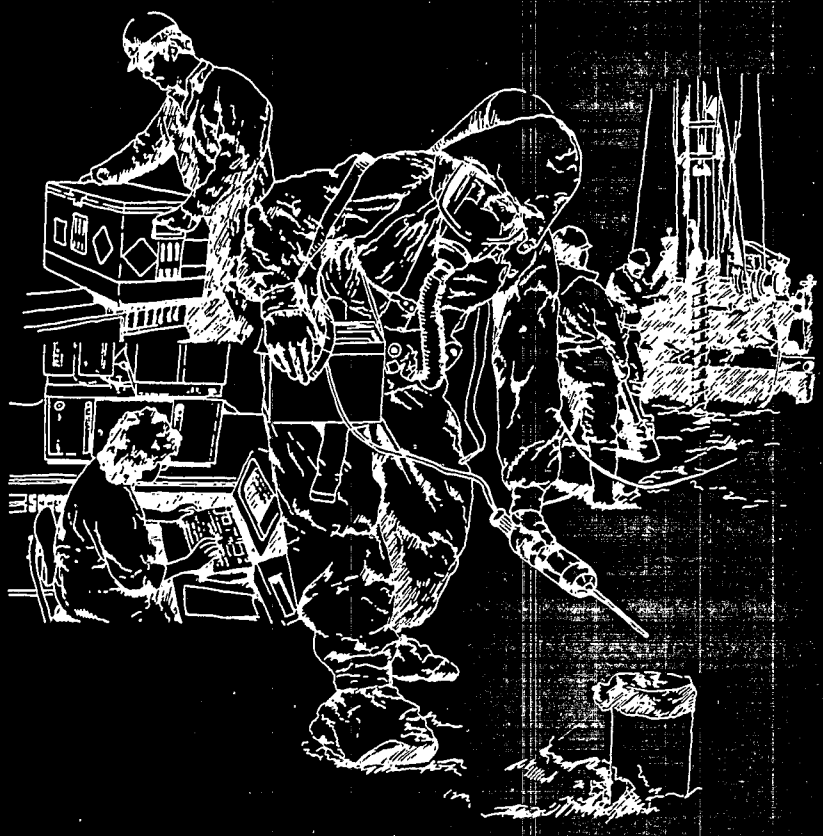
Purpose: CERCLA Screening Site Inspection

Site: Cosden Oil and Chemical Company
534 West Struck Avenue
Orange, California
Orange County

EPA

HAZARDOUS SITE EVALUATION DIVISION

Field Investigation Team Zone II



CONTRACT NO. 68-01-7347

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(0496)

Purpose: CERCLA Screening Site Inspection

Site: Cosden Oil and Chemical Company
534 West Struck Avenue
Orange, California
Orange County

Site EPA ID Number:	CAD000097634
TDD Number:	F9-8909-039
Program Account Number:	FCA1288SAA
FIT Investigators:	Cathleen Cauz Daniel Hafley Janet Kaps
Date of Inspection:	October 13, 1989
Report Prepared By:	Cathleen Cauz
Report Date:	March 15, 1990
FIT Review/Concurrence:	James M James 3/21/90
Submitted To:	Paul La Courreye Site Assessment Manager EPA, Region IX

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1. SITE DESCRIPTION

Pursuant to Technical Directive Document F9-8909-039, Ecology and Environment, Inc.'s Field Investigation Team (FIT) conducted a Screening Site Inspection at the Cosden Oil and Chemical Company site, 534 West Struck Avenue, in Orange, California. This report summarizes FIT's investigative efforts and draws conclusions regarding the site's eligibility for inclusion on the U.S. Environmental Protection Agency's (EPA's) National Priorities List.

The Cosden Oil and Chemical Company site (Cosden), now occupied by Nursery Supplies, Inc., is located at 534 West Struck Avenue in a mixed residential/light industrial area of Orange, California (T4S, R9W, S24) (see Figure 1-1: Site Location Map) (1,2). The Orange County site is located approximately 1 mile east of the Santa Ana River and is bordered on the east by the Topeka and Santa Fe Railroad and on the west, south, and north by light industrial companies (1).

For an undetermined period of time prior to 1977, the property was occupied by Granada Plastics, as evidenced by a tank permit issued to Granada Plastics in 1976 by the City of Orange Building Department (3). The operations of Granada Plastics at the site are not known.

From at least 1977 to 1984, the site was occupied by two subsidiaries of American Petrofina: Cosden and Sterling Plastics. Both subsidiaries produced polystyrene resin pellets (2,4). The facility was operated by Sterling Plastics until approximately 1978 and then by Cosden until 1984 (5). According to the EPA Facility Index database, Sterling Plastics (EPA ID No. CAD039133079) is listed in the Chemicals in Commerce Information System (Office of Toxic Substances) (6). While Sterling Plastics was never regulated under RCRA, Cosden submitted a Notice of Hazardous Waste Activity in August 1980 for regulation as a Class 1 generator (7).

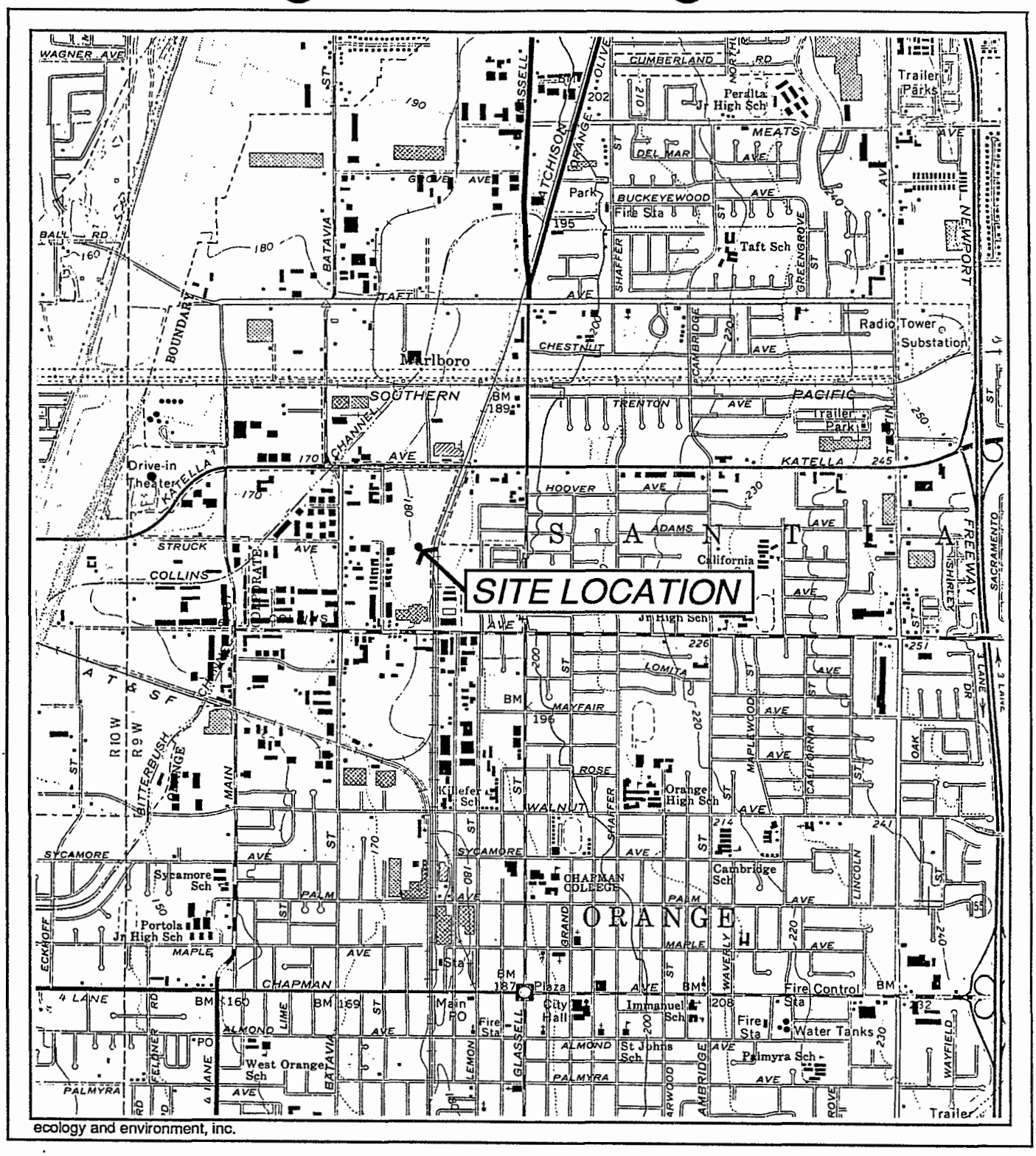

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Figure 1-1 SITE LOCATION MAP
NURSERY SUPPLIES, INC., FORMERLY OCCUPIED BY
COSDEN OIL AND CHEMICAL COMPANY
534 W. STRUCK AVENUE
ORANGE, CALIFORNIA

Styrene monomer was used to produce polystyrene resin pellets. The styrene monomer was transported to the site in tank cars and stored in one of three 50,000-gallon underground storage tanks on the site (see Figure 1-2, Facility Map). The styrene monomer was transferred to the aboveground rubber dissolver tank where rubber was added. This styrene-rubber solution was transferred to the mix feed underground storage tank. After being mixed with mineral oil and ethyl benzene, the mixed feed was pumped to the first polymerization vessel. Next, the styrene was polymerized through a series of four reactors until all the mixed feed was converted into inert (solid) polystyrene resin. The resin was then stripped of any styrene monomer under vacuum and made into small pellets, which were bagged for shipping (5). Polystyrene pellets are used to manufacture common molded plastic products (2).

Two major spills in 1978 and 1982 involving styrene monomer resulted in evacuation of residents due to flammable and toxic gas hazards (8,9). In 1983 manufacturing at the site ceased and operations switched to sales and packaging only (10).

In 1984, the property was sold to Classic Properties and subsequently leased to Nursery Supplies, Inc. Currently, Nursery Supplies manufactures plastic containers by injection molding and blow molding. The only raw material involved is solid polyethylene, which is stored in aboveground silos (11). Nursery Supplies is not regulated by RCRA (7). Nursery Supplies recycles the hydraulic oil which they receive and store it in 55-gallon drums (11).

In September 1985 during site improvement operations (removal of existing asphaltic pavement and replacement with concrete pavement), soil contamination was found in subsurface soils. Subsequently, a survey of the site was conducted using a HNU Photoionization Detector. At each location of contamination, trenches were excavated until soil samples indicated con-taminant concentrations below detection limits. The con-taminants detected in the subsurface soils were styrene and ethyl benzene.

SOURCE: Sterling Plastics Corporation, August 1978

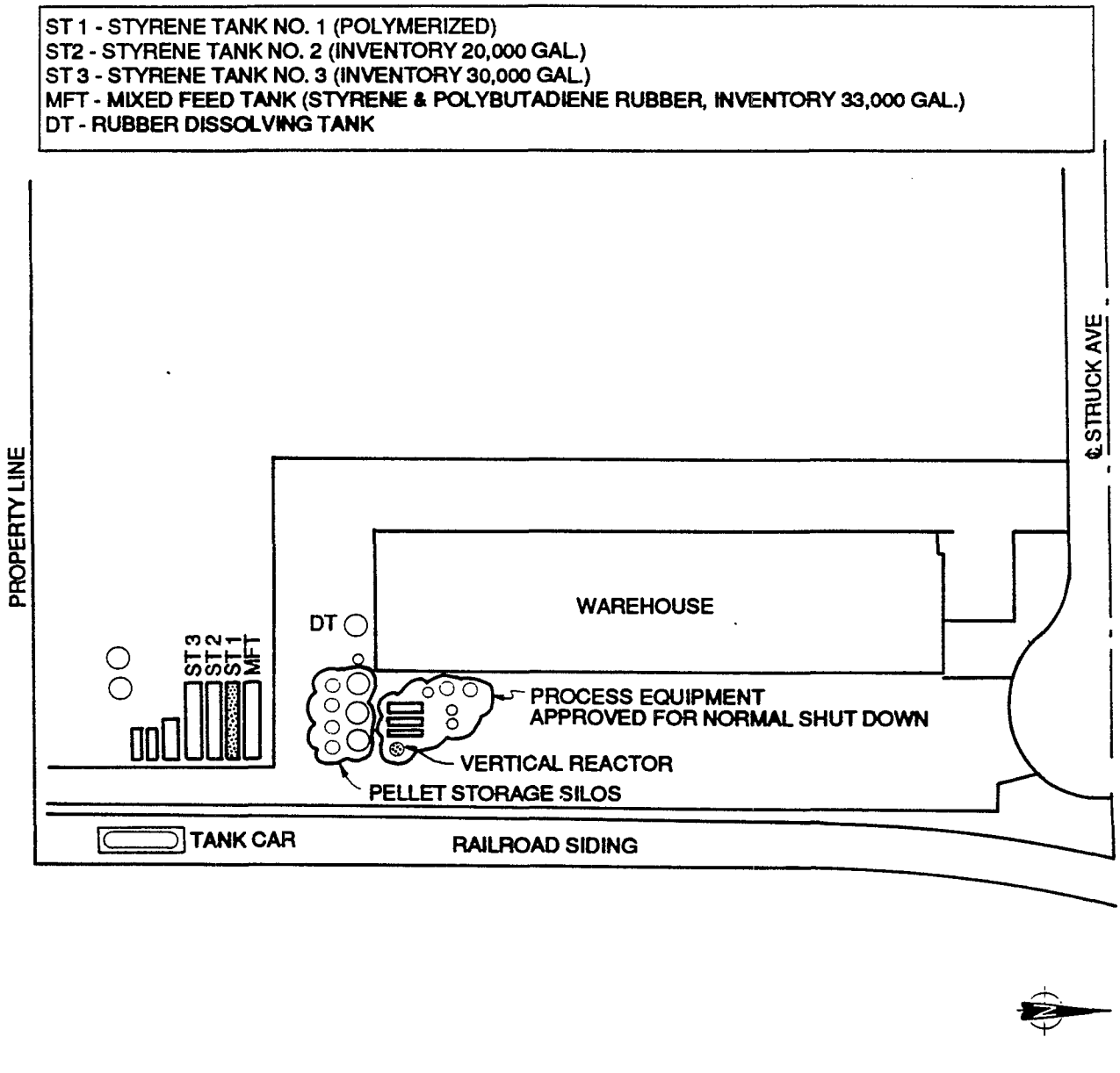

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Figure 1-2 FACILITY MAP
COSDEN OIL AND CHEMICAL COMPANY
ORANGE, CALIFORNIA

The South Coast Air Quality Management District approved aeration and evaporation of the styrene and ethyl benzene by spreading the excavated soils in the southwest area of the property (12). In May 1989, the Orange County Health Care Agency (OCHCA) concluded that remediation of known soil contamination at 534 West Struck Avenue, Orange, had been satisfactorily completed (13).

2. APPARENT PROBLEM

2.1 SPILL INCIDENTS

Styrene is a plastic in liquid form which hardens quickly into a solid, unless an inhibiting chemical is added. After this inhibiting chemical has been added at the manufacturing plants, the plastic can then be transported by tank car and stored in liquid form. Large quantities of the liquid plastic were transported by train to the site during Cosden's and Sterling's occupancies and stored in underground tanks until conversion into solid pellets (5).

On August 14, 1978, liquid styrene monomer began to harden and generate heat in two on-site tanks. This heat caused a vapor release from a 40,000-gallon, underground tank and a connected 12,000-gallon, aboveground tank. The on-site, underground tanks were buried in backfill and loose aggregate. The underground tank vents allowed vapor to escape without rupturing the tank, but some vents from the aboveground tank split due to the pressure (14). While a fire did not occur, the potential for ignition of an explosive fire was high (14,15). Styrene monomer has a flash point of 90° Fahrenheit and is in the same combustion category as gasoline (15,16). A white vapor cloud spread over a 2-square mile area of the city and 100 feet into the air (9). Due to the threat of fire and the toxic vapors, approximately 3,000 people in the area were evacuated (14,15).

Within 3 hours, a 20,000-gallon lump of semi-solid styrene had hardened in the underground tank (9). According to newspaper reports, the facility was occupied by Sterling Plastics at the time (9,14,15). Because good records were not maintained at this time, information about this 1978 incident is limited.

In November 1982, a loss of electricity caused an interruption in the operation of a Cosden refrigeration unit that pumped inhibiting chemical to the liquid styrene monomer. The valve of a 6,000-gallon, aboveground tank ruptured after a sufficient amount of vapor had accumulated.

Apparently fire officials were summoned too late to prevent heating of the styrene monomer. A fire ensued, allowing vapors to escape. Approximately 3,000 school children, workers, and residents were evacuated from a 5-mile sector around the plant. Areas were sandbagged to prevent further tank deterioration and release of liquid monomer (8,16).

The 1982 incident involved the same type of reaction as the 1978 incident: the solidification of the styrene monomer into a "plastic blob." An OCHCA source familiar with the 1982 incident does not recall a large quantity of liquid styrene monomer being released with runoff water to the flood channels. This source also indicated that although some polymerized styrene was released into the flood channels, the majority of the styrene monomer hardened in the tank (17). According to the City of Orange Fire Department, any substances released in the 1982 incident were either polymerized or rendered nonhazardous (18). No documentation exists to substantiate the solidification of all the styrene monomer into solid polymer styrene or the rendering of the released substances nonhazardous. Cleanup operations were performed at the site but the extent of the cleanup is unknown (5,10).

2.2 UNDERGROUND TANK INSTALLATION AND REMOVAL

Complete documentation of underground tank installation and removal operations at the site does not exist. Furthermore, the information available regarding the number and volume of underground tanks is conflicting. According to the City of Orange Fire Department, seven tanks were installed for Granada Plastics in December 1975 but were not registered (19). Yet, representatives of Cosden's parent company, American Petrofina, indicate that only six underground tanks existed on the site. Apparently the contract between Petrofina and Granada Plastics that documents the sale of only six tanks to Petrofina has been lost (20). The City of Orange Building Department has on file one permit for 534 West Struck Avenue. This permit was issued to Granada Plastics in 1976 for mineral oil storage tanks, and does not note either the number

of tanks or volume thereof (3). A Sterling Plastics facility map (see Figure 1-2) indicated at least four underground tanks in the tank area (MFT, ST1, ST2, and ST3), and more may possibly exist (5).

As for tank removal, Petrofina has indicated that five of the six tanks were removed whole, loaded on trucks, and shipped to the company's Louisiana plant. The sixth tank, which contained solidified material (apparently due to the 1978 incident), was cut apart and handled by a disposal company. This removal process apparently occurred in 1983, although Petrofina cannot supply any documentation (20,21). An OCHCA inspection on March 23, 1984, documents the removal of three on-site, underground tanks in July 1983 and their transport to Louisiana. One tank contained 8,000 gallons of styrene monomer, one tank contained 3,500 gallons of styrene monomer and water, and one tank contained 5,000 gallons of oil and water. Furthermore, 8,400 pounds of polystyrene resin were shipped to Louisiana in 55-gallon drums; it is likely that this was the solidified material from the underground tank spill in 1978 (10). The City of Orange confirms the removal of three tanks but dates such removal in 1982 (22). Neither OCHCA nor the City of Orange has documentation regarding the removal of more than three underground tanks (10,22).

There are no tanks currently listed in the City of Orange Fire Department file for 534 West Struck Avenue. According to the fire department, this lack of documentation does not necessarily mean that all on-site tanks were removed. A proposal exists in the Fire Department's file for the removal of a tank containing hardened material in its piping (possibly the tank involved in the 1978 incident), but nothing in the file exists to document the performance of such a removal (23).

2.3 SOIL CONTAMINATION AND REMEDIATION

Soil contamination was discovered by Nursery Supplies, Inc. during on-site excavations for site improvements (12,24). On-site soils were contaminated with styrene and ethyl benzene (12). OCHCA has speculated that the contamination was due to the off-loading of chemicals from

railroad cars, since contamination was discovered on both sides of the railroad tracks. Chemicals were transferred from the railroad cars to underground tanks on the site via hoses. Once the tanks were full, the hoses were disconnected, and it is believed that the excess chemicals were allowed to drain out of the hoses onto the ground (25). It is not known if underground tank leakage contributed to the soil contamination.

The cleanup of the soil contamination was performed in two stages because a portion of the cleanup had to be synchronized with the railroad due to the proximity of the contamination to the railroad tracks (25). The first stage was performed by Leighton and Associates in September 1985 (see Figure 2-1: Location of Excavated Trenches and Stockpile Areas) (12). The second stage, in the railroad area, was performed by Nursery Supplies under the supervision of OCHCA (25). Contamination was first detected in September 1985 by the discoloration and the different texture (clayey) of the soil (12,25). Excavation of the soil was continued beyond the discoloration and different texture until soil sampling indicated contaminant concentrations below HNU detection limits (25).

Two areas were found in the area of the former tank cavity that exhibited readings of 30 parts per million (ppm) on the HNU. Although the tank excavation in this area had supposedly been approved by the City of Orange Fire Department, two trenches (T-3 and T-4) were excavated to the bottom of the former tank cavity. Soil samples were collected at 3, 6, 9, 12, 15, and 17 feet below ground surface in T-3 and T-4, as well as 18.5 feet below ground surface in T-4. All samples registered 0 ppm on the HNU. It was apparent from the excavation log and observation of the trench wall that local loose debris and soil had been pushed locally onto the top of the tank cavity during previous backfilling operations. Trenches T-3 and T-4 were the only locations of surficial soil contamination in the former tank area (12). It appears that the soil contamination in the former tank area extended only to surficial soils.

All the trenches were backfilled with concrete slurry (12). The excavated soils were stockpiled in the southwest area of the facility (see Area 5 of Figure 2-1) (12,26). Approval was received from the South

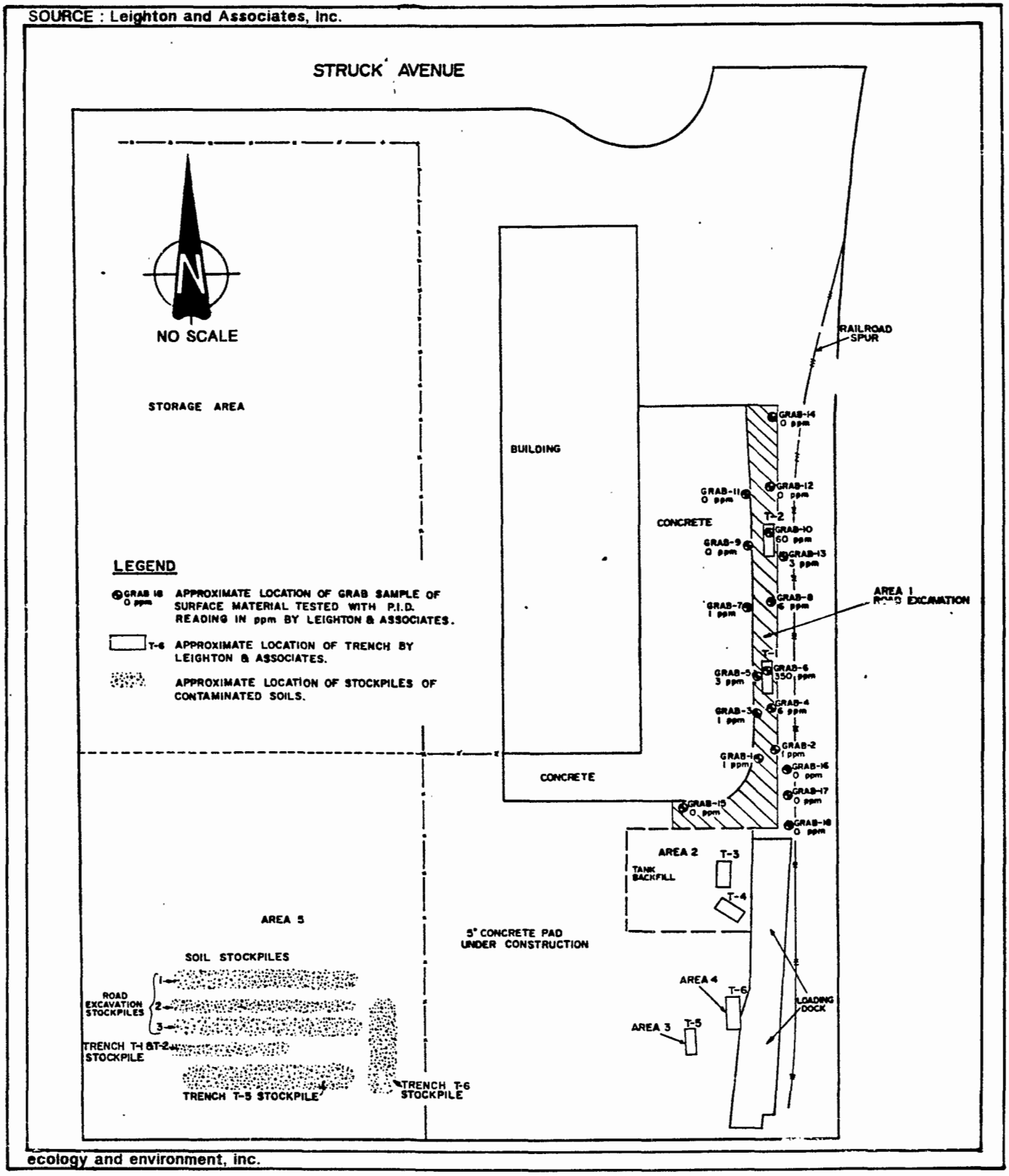

Figure 2-1 LOCATION OF EXCAVATED TRENCHES AND STOCKPILE AREAS

534 WEST STRUCK AVENUE
ORANGE, CA

Coast Air Quality Management District to aerate and vaporize the styrene and ethyl benzene from the contaminated soils (27). The soil material was periodically turned to enhance the aeration process. Final concentrations of contaminants in composite soil samples from the first stage aerated soils were less than the laboratory detection limits (0.2 ppm for styrene and 0.1 ppm for ethyl benzene) (12). The final concentrations of contaminants in soil samples from the second stage aerated soils ranged from 0.1 to 2.1 ppm for styrene and 0.1 to 6.9 ppm for ethyl benzene (26). In May 1989, OCHCA certified the site cleaned and closed (13).

Appendix C contains the consultant's final report on the investigation and remediation of soil contamination (first stage) at Nursery Supplies (12). Appendix D contains OCHCA's documentation of Nursery Supplies' remediation of soil contamination in the railroad area (second stage) (26,28).

3. HRS FACTORS

3.1 WASTE TYPE AND QUANTITY

Both Cosden and Sterling Plastics produced approximately 60,000,000 pounds of polystyrene resin pellets annually (5,29). Approximately one tank car of styrene was converted into inert resin daily (5). Wastes involved were inhibited styrene monomer (flammable liquid), and semi-solid plastic (flammable solid). Both of these wastes were stored in drums for less than 90 days and then shipped to Casmalia landfill (29). According to a Department of Health Services Industrial Waste Survey questionnaire dated March 1980, the wastes produced at the facility included organic chemicals, wastewater from a cooling tower blowdown system, water and trace organics, and polystryene waste. None of these wastes were considered by Cosden to be hazardous. These wastes totaled more than 1,000 gallons annually. These were either discharged to the municipal sewer system or transported to an off-site disposal facility (4).

No information is available regarding the waste operations at Granada Plastics.

After the closure of Cosden's manufacturing operations in 1982, the facility received hard pellets in tanker trucks, which were then piped to an outside hopper and emptied into packages. The only chemical used for this operation was 1.5 quarts of oil per month. This oil was stored in a drum and later disposed of off site (10).

The only raw material involved in the blow-molding and injection-molding operations at Nursery Supplies is solid polyethylene, which is stored in aboveground silos. The facility also receives and stores hydraulic oil in 55-gallon drums. This oil is recycled off site after use. The facility does not handle any liquid chemicals (2,11).

The amount of liquid styrene that was released in either the 1978 or the 1982 incident is not known (17). The 1978 spill involved a 40,000-gallon, underground tank connected to a 12,000-gallon, aboveground tank, while the 1982 incident involved a 6,000-gallon, aboveground tank.

Based on the investigation and remediation of on-site soil contamination, it appears that contamination of soils with styrene and ethyl benzene was due to off-loading of the aforementioned chemicals from tank cars (25). Table 3-1 below shows the highest detected concentrations of contaminants at the various excavations.

Table 3-1

RESULTS OF CONTAMINATED SOIL EXCAVATIONS (12,26,28)

Location	Concentration (a) (ppm)	Excavated Area (square feet)	Excavated Volume (cubic feet)
T-1	350	315.0	2,520.0
T-2	60	125.0	375.0
T-3	30	3.1	53.4
T-4	30	3.1	58.1
T-5	85	120.0	360.0
T-6	unknown	240.0	720.0
RR (b)	29	1,000.0	5,000.0

(a) These concentrations were measured with an HNU, and thus represent an estimate of the total concentration of volatile organics. Lab analysis of soil samples later indicated styrene and ethyl benzene contamination.

(b) RR represents the excavations performed during the second stage of remediation near the railroad tracks. More than one trench may have been excavated, but all resources have compiled the excavation size into one volume.

The total excavated area and volume are estimated at 1,806 square feet and 9086.5 cubic feet, respectively. Trenches T-3 and T-4 were the only locations of contamination detected near the former tank area, and no contamination was detected in soil samples from 3 feet or more below ground surface in either trench (12). If any contaminants leaked from

the underground tanks, it appears that contaminated soils were removed during tank removal operations. Furthermore, despite incomplete documentation, it does not appear from the investigation of soil contamination that any underground tanks remain on site.

3.2 GROUNDWATER

The Cosden site is located in the Santa Ana forebay area of the Costal Plain Basin. Three major aquifer systems--the upper, middle, and lower--comprise the Costal Plain Basin. The upper aquifer system averages 800 feet in thickness, consists of four identified aquifers, and currently supplies most of the groundwater utilized in the county. Coarse-grained alluvial deposits of the upper aquifer system are in contact with the ground surface, and thus the groundwater in the Santa Ana Forebay area is unconfined. The Santa Ana forebay area serves as the zone of recharge for the confined groundwater system in the east area of the Costal Plain Basin (30). The depth to groundwater in the Orange area has been estimated to be as shallow as 70 feet below ground surface (12,26). The groundwater gradient in the vicinity of the site is toward the southwest (31).

The City of Orange supplies drinking water through a system of groundwater wells and imported water. The groundwater and imported water are not blended. Groundwater from the wells does not go to one central location for distribution but rather directly to the consumers. The 100,000 customers in the area served by groundwater rely on the City of Orange wells as their sole source of drinking water. The nearest City of Orange well is located at 637 West Struck Avenue, less than 2,000 feet west of the site. The first perforation in this well occurs at 446 feet below ground surface. Another City of Orange well is located at the corner of Main and Katella Streets, less than 3,000 feet from the site. Perforations of this well begin at 132 feet below ground surface. Table 3-2 presents drill log information for this well, indicating the soil types at the given depths (31,32).

Table 3-2

CITY OF ORANGE WELL LOG (32)

Depth (feet)	Soil
0 - 10	dirt and rock
10 - 90	gravel and rock
90 - 110	brown, sticky clay; sand; gravel
110 - 150	sandy, brown clay; rock chips; gravel
150 - 180	gravel and small rock

The potential for a release of contaminants to groundwater appears to be low based on soil excavations performed at the site which indicated that styrene and ethyl benzene contamination had not migrated (17,30).

3.3 SURFACE WATER

The Santa Ana River is located approximately 1 mile down-gradient of the site to the west. The Collins and Bitterbush Channels are located approximately 2,000 and 2,500 feet, respectively, from the site (1). Although the site itself is not located in a designated floodplain, these two channels are used for flood control; they collect rainwater and storm drain water and have outlets to the Santa Ana River (1,31,32). Surface water at the facility would likely run off into either of these channels and then to the Santa Ana River. Indeed, water used by the fire department during the 1982 spill ran off to the flood channel. This runoff water may have contained spilled styrene monomer (17).

According to the Regional Water Quality Control Board, from Prado Dam (approximately 16 miles upstream of the flood channel inlets to Santa Ana River) to 17th Street (approximately 3.25 miles downstream), the Santa Ana River is designated for groundwater recharge, agricultural irrigation, non-contact recreation, and wildlife habitat (33). In reality, uses of the Santa Ana river upstream of 17th Avenue are a function of how much water is in the river. The flow in the river depends on the amount of water percolated for groundwater recharge and released at Prado Dam. Percolation usually occurs from Prado Dam to the city of Anaheim by the

Imperial Freeway (approximately 7.5 miles upstream). However, percolation sometimes occurs as far downstream as Chapman Avenue (approximately 1.4 miles downstream). The water diverted out of the river is piped at a maximum rate of 450 cubic feet per second (34).

Flow records for the Santa Ana River note a maximum discharge of 18,500 cubic feet per second and the occurrence of no flow for many days of the year (35). While the Santa Ana River is normally a dry river bed through the city of Orange, portions of the river in the area have been seen with water and some reeds; tidal flow movement has also been observed (36). Downstream of 17th Street to the Pacific Ocean, the Santa Ana River is usually dry, and its uses include non-contact recreation and wildlife habitat (33). Flow in the Santa Ana River terminates in marshes upstream of the Pacific Ocean (1). Therefore, no potential exists for contaminant migration to commercial fisheries in the Pacific Ocean. The Garden Grove Golf Course is located in the dry river bed immediately south of 17th Street (34). No federally or state-designated endangered species are known to reside downstream of the site along the Santa Ana River (37).

Although a release of liquid styrene to the flood channel occurred in 1982, the current potential for a release of contaminants to surface water is low (17). Known contaminated soils have been removed and the site is mostly paved (2,12,13). Surface water is not used for drinking water, contact recreation, or as a habitat for endangered species.

3.4 AIR

It does not appear that a potential for a release to air currently exists at the site. Nursery Supplies does not utilize any hazardous substances in the manufacture of plastic containers (2,11). Known contaminated soils have been removed (12,13). The site is mostly paved (2).

However, three previous events released contaminants to the air. Two spill incidents in 1978 and 1982 released toxic gas vapors to the air. In both cases, residents, workers, and school children were evacuated from the area (8,9). In the 1978 incident, no serious injuries occurred

outside of some firemen reporting slight lung and skin irritation from inhalation of and contact with vapors (15,38). In the 1982 incident, one injury of a nearby resident was noted in an OCHCA emergency Hazardous Materials Incident Report but was not elaborated upon (16). In 1985 and 1989, on-site aeration of excavated soils contaminated with ethyl benzene and styrene was approved by the South Coast Air Quality Management District (27).

The area surrounding the site is primarily light industrial and residential.

3.5 ON-SITE

The office building located on site is not fenced. The remainder of the facility is entirely fenced with an automatic gate serving as the only entrance (2). Facility improvements completed in 1985 included repaving of the east and south sides of the facility and covering the undeveloped area south of the building with a concrete slab (12,24). During these improvement operations, Nursery Supplies' consultant screened the site for contaminants (12). As of May 1989, OCHCA considered remediation of on-site soil contamination to be satisfactorily completed (13). Known contaminated soils have been removed (12,13). The potential for on-site exposure appears to be low at the site because the site is located in a light industrial area, fenced, and mostly paved.

4. SUMMARY OF FIT ACTIVITIES

FIT was assigned to conduct a Screening Site Inspection (SSI) of the Cosden Oil and Chemical Company site located at 534 West Struck Avenue, Orange, California. This assignment was subsequent to a Preliminary Assessment (PA) conducted by FIT in October 1984 and a PA Reassessment conducted by FIT in August 1988. As a part of the SSI, FIT reviewed EPA, Orange County Health Care Agency, and City of Orange Fire Department files relating to the site and contacted the facility (Ted Guariello, Nursery Supplies, Inc. facility manager) to arrange a site visit.

FIT conducted the site reconnaissance visit of the Nursery Supplies, Inc. facility, formerly the location of Cosden Oil and Chemical Company, on October 13, 1989. FIT members included Cathleen Cauz, Project Manager; Daniel Hafley, Site Safety Officer; and Janet Kaps, Field Team Member. Nursery Supplies was represented by Ted Guariello, Facility Manager. Cosden Oil and Chemical Company was not represented during this site reconnaissance. An interview was conducted at the Nursery Supplies, Inc. office building prior to the site tour (2).

The interview provided information regarding Nursery Supplies' discovery of on-site soil contamination and their subsequent remediation efforts. In addition, Nursery Supplies' operations at the site since occupation were discussed. Mr. Guariello provided FIT with all known information regarding the site's former occupants (2).

A survey of the facility followed the interview. Monitoring equipment used during this survey were an Organic Vapor Analyzer and a radiation dosimeter. After proceeding approximately one-third the length of the warehouse, radiation readings on the radiation dosimeter had reached 0.5 millirem per hour (mR/hr). Since Ecology and Environment Health and Safety policy requires evacuation of a site if radiation readings exceed 0.1 mR/hr, FIT left the facility. No radioactive materials are known to have been used or disposed of at the site. Furthermore, it should be

noted that the radiation dosimeter is used solely as a screening device and thus readings should not be considered accurate levels of radiation at the site (2).

EPA has since asked the Environmental Monitoring Systems Lab in Nevada (a division of the EPA) to conduct a radiation survey of the site. At the time of this report, results of that survey had not yet been received by EPA (39).

No sampling was conducted by FIT at the site because of the existence of sufficient data to assess the site.

5. EMERGENCY REMOVAL CONSIDERATIONS

There is no evidence to indicate that emergency removal is required at this time at the site. Soils known to be contaminated with styrene and ethyl benzene have been excavated and aerated (12). OCHCA certified the site cleaned and closed (13).

6. CONCLUSION

Cosden Oil and Chemical Company and Sterling Plastics formerly operated at 534 West Struck Avenue in Orange, California. Both facilities produced polystyrene pellets. In 1978, during Sterling's occupancy, a spill of styrene monomer occurred from an underground tank and a connected aboveground tank. In 1982, during Cosden's occupancy, a fire occurred in an aboveground tank containing styrene monomer. Nearby residents and workers were evacuated in both cases due to the release of toxic vapors. In both incidents, the styrene monomer solidified into plastic polystyrene. While an amount of liquid styrene was released to the flood channel in the 1982 incident, it is not known if the 1978 incident involved a release of contaminants to subsurface soils or surface water.

In 1984, Nursery Supplies, Inc., a plastic container manufacturer, began occupation of the property. During on-site improvement operations, soils contaminated with styrene and ethyl benzene were discovered. Nursery Supplies does not utilize any liquid chemicals in their operations. Styrene and ethyl benzene were used by Sterling Plastics and Cosden Oil and Chemical Company during polystyrene production. It has been speculated that contamination occurred during off-loading of chemicals from the railroad bordering the site. In May 1989, the OCHCA certified that soil contamination at 534 West Struck, Orange had been cleaned up.

An additional concern at the site has been the incomplete documentation of underground tank removal at the site. Documentation of three underground tank removals exists, but as many as seven underground tanks may have been installed at the site. Nursery Supplies' soil remediation efforts included excavation of soils to 18.5 feet below ground surface and seem to indicate that all underground tanks have been removed.

Groundwater is located approximately 70 feet below ground surface and is the sole source of drinking water for approximately 100,000 people in Orange. The nearest City of Orange well is located less than 2,000 feet

west of the site. On-site surface water runoff drains to nearby flood control channels and then to the Santa Ana River. The Santa Ana River is not used for contact recreation, drinking water, or a critical habitat for endangered species.

No contaminated soils appear to remain on the site. Likewise, Nursery Supplies' operations do not involve any hazardous substances.

It appears that the Cosden site at 534 West Struck Avenue in Orange, California, is not likely to be eligible for inclusion on the National Priorities List due to the following factors:

- Remediation of soil contamination at the site has been completed and approved by the Orange County Health Care Agency;
- While a small release of styrene monomer to the flood control channel may have occurred in 1978 and 1982, the Santa Ana River is not used for drinking water, recreation, or as a critical wildlife habitat; and
- Current conditions at the site do not appear to pose an air or on-site hazard to human health or the environment.

cc/cosden/ssi

7. EPA RECOMMENDATION

	Initial	Date
No Further Remedial Action Planned	MWC	3/29/90
Listing Site Inspection	_____	_____

Notes:

cc/cosden/ssi

8. REFERENCES

1. U.S. Geological Survey, maps of Orange and Anaheim, California, 7.5′ Quadrangles, 1964, (photorevised 1981).

2. Guariello, Ted, Nursery Supplies, Inc., and Cathleen Cauz, Janet Kaps, and Daniel Hafley, Ecology and Environment, Inc. FIT (E & E FIT), site reconnaissance, October 13, 1989 (see Contact Report).

3. Edmiston, Maggie, City of Orange Building Department, and Cathleen Cauz, E & E FIT, telephone conversation, October 2, 1989.

4. California Department of Health Services, Industrial Waste Survey Questionnaire 12580, dated March 27, 1980.

5. Sterling Plastics Corporation, report entitled "Sterling Plastics Corp., 534 W. Struck Avenue, Orange, California, 92667," no date.

6. E.P.A., Facilities Index, April 1989.

7. E.P.A., Resource Conservation and Recovery Act database, April 1989.

8. Griffith, Bob, Orange County Health Care Agency, to Nestande, Orange County Health Care Agency, memo, December 8, 1982.

9. "Chemical Accident Perils Orange," Anaheim Bulletin, August 14, 1978, p. A-1.

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11. Guariello, Ted, Nursery Supplies, Inc., and Cathleen Cauz, E & E FIT, telephone conversation, October 3, 1989.

12. Leighton and Associates, Inc., "Report of Investigation and Mitigation of Soil Contamination Encountered during Grading Operations at Nursery Supplies, Inc., City of Orange, California," July 1, 1986.

13. Hills, John J., County of Orange Health Care Agency, to Guariello, Ted, Nursery Supplies, Inc., letter, May 9, 1989.

14. "Plastic Hardens, Investigators Baffled by Vapor Leak," Los Angeles Times, by Steve Emmans, August 14, 1978.

15. "Chemical vapor routs thousands in Orange," Long Beach Independent, August 15, 1978, pg 1.

16. Orange County Health Care Agency, Public Health and Medical Services Division of Environmental Health, Emergency Hazardous Material Incident Report, November 30, 1982.

cc/cosden/ssi

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18. Diekmann, Bill, Orange County Health Care Agency, and Osborne, Mary, Department of Health Services, record of telephone conversation, January 30, 1985.

19. Baylor, Janet, City of Orange Fire Department, and Mary Osborne, Department of Health Services, record of telephone conversation, December 3, 1985.

20. Veach, James, Petrofina Corporation, and Lorene Flaming, E & E FIT, record of telephone conversation, July 1, 1988.

21. Veach, James, Fina Oil and Chemical Company, to Mary Osborne, Department of Health Services, letter, February 19, 1986.

22. Upchurch, Lee, City of Orange Public Works, and Mary Osborne, Department of Health Services, record of telephone conversation, March 18, 1986.

23. Bland, Anne, City of Orange Fire Department, and Cathleen Cauz, telephone conversation, E & E FIT, September 28, 1989.

24. Leighton and Associates, "Geotechnical Review, Feasibility for Development, 534 Struck Avenue, Orange, California," September 7, 1984.

25. Zimmerman, Gary, Orange County Health Care Agency, and Cathleen Cauz, E & E FIT, telephone conversation, October 10, 1989.

26. Orange County Health Care Agency, Summary Site Closure Rationale for Nursery Supplies, Inc.

27. Lettice, Fred A., South Coast Air Quality Management District, to Hansen, John A., Leighton and Associates, Inc., letter, October 4, 1985.

28. Associated Laboratories, lab report, samples submitted by Nursery Supplies, Inc., samples received March 24, 1989, results reported March 5, 1989.

29. California Department of Health Services, Abandoned Industrial Waste Disposal Survey, February 1, 1981.

30. Orange County Environmental Management Agency, "Groundwater Quality Monitoring in Orange County, California," 1980.

31. Smith, Steve, City of Orange Water Department, and Cathleen Cauz, E & E FIT, telephone conversation, September 20, 1989 and February 22, 1990.

APPENDIX A

CONTACT LOG AND REPORTS

PA/SI CONTACT LOG

Facility Name: Cosden Oil and Chemical Company
Facility ID: CAD000097634

Name	Affiliation	Phone #	Date	Information
Bill Dieckman	Orange County Environmental Health	(714)834-8183	6/13/88	see contact report
James Veach	Petrofina Oil	(214)750-2810	7/1/88	see contact report
Steve Smith	City of Orange Water Department	(714)532-0356	7/7/88	see contact report
Ken Regrier	Orange County Environmental Health	(714)834-7717	7/8/88	see contact report
Ed Gala	City of Orange Planning Department	(714)532-0434	9/20/89	see contact report
Steve Smith	City of Orange Water Department	(714)532-0356	9/20/89	see contact report
Mike Adackapara	Regional Water Quality Control Board	(714)782-4130	9/20/89	see contact report
Anne Bland	City of Orange Fire Department	(714)532-0411	9/28/89	see contact report
Maggie Edmiston	City of Orange Building Department	(714)532-0415	10/2/89	see contact report
Ken E. Smith	Orange County Flood Control District	(714)834-2319	10/2/89	see contact report
Ted Guariello	Nursery Supplies, Inc.	(714)538-0251	10/3/89	see contact report
Gary Zimmerman	Orange County Environmental Health	(714)667-3700	10/10/89	see contact report

cc/cosden/cl

PA/SI CONTACT LOG (continued)

Site Recon-naissance	Nursery Supplies, Inc.	N/A	10/13/89	see site reconnaissance notes
Ginny Cummings	Environmental Protection Agency		11/09/89	see contact report

cc/cosden/cl

CONTACT REPORT

AGENCY/AFFILIATION: Nursery Supplies, Inc.		
DEPARTMENT:		
ADDRESS/CITY: 534 West Struck Avenue Orange		
COUNTY/STATE/ZIP: Orange, California		
CONTACT(S)	**TITLE**	**PHONE**
1. Ted Guarriello		(714)538-0251
2.		
E & E PERSON MAKING CONTACT: Cathleen Cauz		**DATE:** 10/3/89
SUBJECT: underground tanks/current operations at site		
SITE NAME: Cosden Oil and Chemical Co.		**EPA ID#:** CAD000097634

Their current operations include injection molding and blow molding for the manufacture of plastic growing containers. The raw material involved is polyethylene. The polyethylene is stored in above-ground silos. They are not regulated as a generator by RCRA although they do have a generator number for hydraulic oil. They recycle this oil; they store and receive the oil in 55-gallon drums. When Nursery Supplies purchased the property, the site was vacant except for buildings.

According to Ted, the underground tanks were removed in 1981 under the supervision of the City or County of Orange. There was a newspaper article showing the removal of the tanks in the Orange County Register. He guesses that 3 tanks were removed.

The cleanup of the soil contamination has been completed.

The contamination was found during excavation of the site for repavement. The cleanup was done in two stages. The first stage cleanup was performed by Leighton and Associates. They are the soil engineers used by the County. The report prepared for Nursery Supplies was completed in July 1, 1986, and has project number 2850974-05.

There were two stages because they had to leave one contaminated area untouched due to its proximity to the railroad. This cleanup was just completed. The work was done by Nursery Supplies under the supervision of Gary Zimmerman of Orange County Health. He is the last person at OCH that they have dealt with who is still with the agency. Gary pulled the samples. They (Nursery Supplies) received a letter of approval for the cleanup from Gary. He would prefer that I go through either Leighton and Associates or the County to get the report and other information rather than going through his files.

cc/cosden/cl

He has something about tanks T3 and T4. Clay was used as a liner. He recalls that they were very deep. He is unsure of the number of tanks and whether "T4" is an indication of the number of underground tanks.

Nursery Supplies, Inc. occupies and leases the property from Classic Properties. But, they are Classic Properties. That is, Ted is the owner of both Classic Properities and Nursery Supplies. As such, he is two entities.

cc/cosden/cl

CONTACT REPORT

AGENCY/AFFILIATION: City of Orange		
DEPARTMENT: Planning Department		
ADDRESS/CITY: Orange		
COUNTY/STATE/ZIP: Orange, CA		
CONTACT(S)	**TITLE**	**PHONE**
1. Ed Gala	Assistant City Planner	(714)532-0434
2.		
E & E PERSON MAKING CONTACT: Cathleen Cauz		**DATE:** 9/20/89
SUBJECT: Santiago River and Santa Ana River		
SITE NAME: Cosden Oil and Chemical Co		**EPA ID#:** CAD000097634

He has never seen water in the Santiago River. It goes through Hart Park and they use the creek as a parking lot. The sides are channelized. West of Glassel, it is no longer channelized. West of the dam the only water in the river is local run-off. At the east end of the city, run-off is controlled by the dam.

The Santa Ana River, which is normally a dry river bed, runs through the city of Orange. Portions of this river have been seen with water and some reeds. There is also tidal flow movement through this area.

cc/cosden/cl

CONTACT REPORT

AGENCY/AFFILIATION: City of Orange		
DEPARTMENT: Water Department		
ADDRESS/CITY: Orange		
COUNTY/STATE/ZIP: Orange, Ca		
CONTACT(S)	**TITLE**	**PHONE**
1. Steve Smith		(714)532-0356
2.		
E & E PERSON MAKING CONTACT: Cathleen Cauz		**DATE:**9/20/89
SUBJECT: Groundwater wells, water supply		
SITE NAME: Cosden Oil and Chemical Co.		**EPA ID#:** CAD000097634

There is a groundwater well at FX-9 Wells
FX-9 Wells). It is a drinking water well. City of Orange is the water purveyor. Groundwater from the wells does not go to one central location for distribution but rather it goes directly to the customer as need be. The first well perforation is at 446 feet below ground surface.

Bitterbush and Collins Channels are for floodplain control. They have outlets to the Santa Ana River. They collect rain water and storm drain water.

Some areas may be in a floodplain (maybe 100-year), but the site itself is not near a floodplain.

The Santa Ana River is dry through the city of Orange.

I spoke with Steve again on February 22, 1990. The groundwater gradient in the vicinity of the site is towards the southwest. A good person to speak with about this is Roy Herndon of Orange County Water District. His number is (714) 693-8167.

cc/cosden/cl

CONTACT REPORT

AGENCY/AFFILIATION: Orange County Flood Control District		
DEPARTMENT:		
ADDRESS/CITY: Orange		
COUNTY/STATE/ZIP: Orange, CA		
CONTACT(S)	**TITLE**	**PHONE**
1. Ken E. Smith		(714)834-2319
2.		
E & E PERSON MAKING CONTACT: Cathleen Cauz		**DATE:** 10/2/89
SUBJECT: surface water		
SITE NAME: Cosden Oil and Chemical Co.		**EPA ID#:**CAD000097634

As for the Santa Ana River, a golf course leases majority of the river just south of 17th (Garden Grove Golf Course). The course goes right through the river. There is no bridge to cross the river.

Other uses of the Santa Ana River above 17th Avenue are a function of flow in the river. Percolation occurs usually just to Anaheim but sometimes as far downstream as Chapman Avenue. The river is a recharge basin. Water is diverted out of the river and piped at a maximum if 450 cfs. The flow depends on water used and released at Prado Dam. It is operated by the Orange County Water District.

cc/cosden/cl

CONTACT REPORT

AGENCY/AFFILIATION: City of Orange		
DEPARTMENT: Fire Department		
ADDRESS/CITY: Orange		
COUNTY/STATE/ZIP: Orange, CA		
CONTACT(S)	**TITLE**	**PHONE**
1. Anne Bland	Fire Prevention	(714)532-0411
2.		
E & E PERSON MAKING CONTACT: Cathleen Cauz		**DATE:** 9/28/89
SUBJECT: Underground tank removal		
SITE NAME: Cosden Oil and Chemical Co.		**EPA ID#:** CAD000097634

There is no a current tank listed in her file, but that does not mean that it was necessarily removed.

In 1978 there was an exothermic, vapor-producing reaction in an underground tank. The material hardened in the piping so it had to be removed. There is a proposal for the removal of the tank but nothing in the file indicates that it was actually done and that someone witnessed it.

If I want to look at the file, I need to call before I come down to let the inspector know.

cc/cosden/cl

CONTACT REPORT

AGENCY/AFFILIATION: City of Orange		
DEPARTMENT: Building Department		
ADDRESS/CITY:		
COUNTY/STATE/ZIP: Orange, CA		
CONTACT(S)	**TITLE**	**PHONE**
1. Maggie Edmiston	permits	(714)532-0415
2.		
E & E PERSON MAKING CONTACT: Cathleen Cauz		**DATE:** 10/2/89
SUBJECT: underground tanks		
SITE NAME: Cosden Oil and Chemical Co.		**EPA ID#:**CAD000097634

She has one permit on file for the address. It is for Granada Plastics, issued in 1976. They were mineral oil storage tanks. Size is 21,368 sq. ft. I asked about the number of tanks. She said there was a number 5 on the permit with a circle around it; she is not sure if this is an indication of the number of tanks.

cc/cosden/cl

CONTACT REPORT

AGENCY/AFFILIATION: Regional Water Quality Control Board		
DEPARTMENT: Recreation		
ADDRESS/CITY:		
COUNTY/STATE/ZIP: Orange, CA		
CONTACT(S)	**TITLE**	**PHONE**
1. Mike Adackapara	Chief of Recreation	(714)782-4130
2.		
E & E PERSON MAKING CONTACT: Cathleen Cauz		**DATE:** 9/20/89
SUBJECT: surface water uses		
SITE NAME: Cosden Oil and Chemical Co.		**EPA ID#:** CAD000097634

The Collins Channel and Bitterbush Channel are likely to be flood control channels. They are tributaries to the Santa Ana River. If no use is specified for a tributary to Santa Ana River, then use of this tributary is wildlife habitat and non-contact recreation.

The Santiago Creek flows most of the time below Irvine Lake. Uses include groundwater recharge, non-contact recreation, wildlife habitat, freshwater habitat, and municipal and domestic water supply.

There is usually no flow in the Santa Ana River from the ocean to 17th St. Uses include non-contact recreation and wildlife habitat. From Prado Dam to 17th St, there is flow up to the recharge basin. Uses include agricultural, groundwater recharge, body contact recreation, non-contact recreation, warm freshwater habitat, and wildlife habitat.

cc/cosden/cl

CONTACT REPORT

AGENCY/AFFILIATION: Petrafina Oil		
DEPARTMENT:		
ADDRESS/CITY:		
COUNTY/STATE/ZIP:		
CONTACT(S)	**TITLE**	**PHONE**
1. James Veach	Lawyer	(214)750-2810
2.		
E & E PERSON MAKING CONTACT: Lorene Flaming		**DATE:** 7/1/88
SUBJECT: underground tanks		
SITE NAME: Cosden Oil and Chemical		**EPA ID#:** CAD000097634

Cosden Oil is a subsidiary of Fina Oil and Chemical. Jim states that there were only six tanks originally, not seven. The 1978 incident involved 1 tank which stayed underground until all six were removed in 1983. He offered to have an employee who witnessed the removal write a report but a similar letter is already in the file. I requested a copy of the contract between Fina and the former owner (Granada Plastics) which would document that only six underground tanks were sold to Fina, but Mr. Veach states that this contract was lost at some point.

The company has never been able to provide documentation concerning the original number of tanks or their removal other than witness reports from memory.

cc/cosden/cl

CONTACT REPORT

AGENCY/AFFILIATION: City of Orange		
DEPARTMENT: Water Department		
ADDRESS/CITY:		
COUNTY/STATE/ZIP: Orange County, California		
CONTACT(S)	**TITLE**	**PHONE**
1. Steve Smith		(714)532-0356
2.		
E & E PERSON MAKING CONTACT: Lorene Flaming		**DATE:** 7/7/88
SUBJECT: groundwater		
SITE NAME: Cosden Oil and Chemical		**EPA ID#:** CAD00009764

A well was drilled 2 years ago at the corner of Batavia and Struck (less than 2,000 feet). The nearest well in 1982 was a private one owned by Silver Springs Water Company which used it for bottled water (less than 0.5 miles). The nearest municipal well at the time was at the corner of Main and Katella (less than 3,000 feet). Although the water system receives imported water, the water from these wells is not blended before delivery so customers in this area rely on these wells as their sole supply. System serves 100,000 people. Static water level is at 132 feet. Drill log indicates these soil types:

0-10	dirt and rock
10-90	gravel and rock
90-110	brown sticky clay, sand, and gravel
110-150	sandy, brown clay, rock chips, gravel
150-180	gravel and small rock

cc/cosden/cl

SITE RECONNAISSANCE NOTES

AGENCY/AFFILIATION: Nursery Supplies, Inc.		
DEPARTMENT:		
ADDRESS/CITY: 534 West Struck Avenue, Orange		
COUNTY/STATE/ZIP: Orange County, California,		
CONTACT(S)	**TITLE**	**PHONE**
1. Ted Guariello	Facility Manager	
2.		
E & E PERSON MAKING CONTACT: C.Cauz, D. Hafley, J. Kaps		**DATE:** 10/13/89
SUBJECT: site operations/soil contamination and remediation		
SITE NAME: Nursery Supplies, Inc.		**EPA ID#:** CAD000097634

The property was purchased directly from Cosden. Ted is two entities. He is Nursery Supplies, Inc. and he is Classic Properties (i.e. owner and leasor thereof). There was no mention made in the purchase concerning tanks or possible contamination.

As for Nursery Supplies current operations, there are no liquid plastics on site. Nursery Supplies forms plastic containers from polyethylene beads. Their raw materials are the end products of Cosden's former operations. These beads are used to make common everyday plastic objects.

Nursery Supplies detected contamination by the soil's odor. The contaminants were styrene monomer (liquid) and benzene (a catalyst). Another catalyst other than benzene may have been used by Cosden also; Ted does not know.

Concerning the 1982 incident, Ted knows: It involved a boiler and a pressure vessel. There was never an explosion or even a fire. It was caused by a power outage. There was a controlled reaction to make plastic and involved increasing heat. This reaction is controlled under normal conditions. The emergency vents opened up. It is unknown if liquids or vapors were emitted from the vents. After this incident Cosden bailed out. All they needed to do was install a back-up generator which is not a large expense.

As for the cleanup after this incident, Ted spoke with two people at the fire department: Ray Montoya (captain at the time of the incident, he may be chief now) and Chief Flagherty (chief at time of incident). Apparently, 30 pounds of material vaporized out of the soil. Ted spoke with these two people when purchasing the property; they may have been

cc/cosden/cl

present at the 1982 incident.

Cosden Oil and Chemical is now in Garden Grove and now operates as a molding facility. He is unsure what name they operate under.

When contamination was discovered, Ted contacted Cosden. They refused to give him any information. Later he was referred to their lawyers. Cosden is part of Petrofina, a very large company (much larger and more powerful than Nursery Supplies).

We then reviewed the Leighton and Associates report. Ted gave me a copy. The second part of the cleanup was done by Nursery Supplies. The data was approved by Orange County Health Department for this second stage. It is available at OCHD.

After reviewing soil cleanup at the site, Ted offered to give FIT a facility tour. We calibrated our equipment and met Ted by the automatic gate. After proceeding approximately one-third the way down the facility warehouse, FIT member Janet Kaps informed us that the Rad-Mini was measuring 0.5 mrem/hr and that it would be necessary, under E & E policy, to leave the site. FIT member Dan Hafley confirmed this. After leaving the area enclosed by the automatic gate, we explained E & E radiation policy to Ted and radiation in general terms. We then left the site.

cc/cosden/cl

CONTACT REPORT

AGENCY/AFFILIATION: Environmental Protection Agency		
DEPARTMENT: Superfund - Site Evaluation Section		
ADDRESS/CITY: San Francisco		
COUNTY/STATE/ZIP: San Francisco County, California		
CONTACT(S)	**TITLE**	**PHONE**
1. Anita Parker	Site Assessment Manager	
2. Ginny Cummings	Site Assessment Manager	
E & E PERSON MAKING CONTACT: Cathleen Cauz		**DATE:** 11/09/89
SUBJECT: radiation		
SITE NAME: Cosden Oil and Chemical Company		**EPA ID#:** CAD000097634

I spoke with Anita on November 9 concerning the radiation at the Cosden Oil and Chemical site. I had spoken to her before on October 16, when she informed me that she would look in to it to see what should be done (i.e., a radiation survey). On November 9, she informed me that TAT was not capable of doing radiation work, and therefore that she would contact EPA's radiation people at EMSL (Environmental Monitoring Systems Laboratory in Nevada) to go on site. She also asked me to submit to her a memo describing what had occurred on the site for her to give to EMSL when she talks to them. This way, EMSL would know exactly what happened. EMSL would likely do a survey of the site. I submitted this memo to EPA on November 14, 1989.

Anita also informed me that the new site assessment manager for the site was Ginny Cummings but that, with regards to the radiation, I should speak to her (Anita) still.

I called Ginny on December 15 to talk about the site. She informed me that EMSL had been contacted and were to do a rad survey. She was not sure about a time frame for this happening.

cc/cosden/cl

CONTACT REPORT

AGENCY/AFFILIATION: Orange County		
DEPARTMENT: Environmental Health		
ADDRESS/CITY: 515 N. Sycamore, Santa Ana		
COUNTY/STATE/ZIP: Orange County, California 92701		
CONTACT(S)	**TITLE**	**PHONE**
1. Gary Zimmerman		(714)667-3700
2.		
E & E PERSON MAKING CONTACT: Cathleen Cauz		**DATE:** 10/10/89
SUBJECT: soil remediation		
SITE NAME: Cosden Oil and Chemical Company		**EPA ID#:** CAD000097634

Title 22 does not deal with any cleanups at all. He has no knowledge of any tanks on site. They have received no help from the EPA concerning this site.

He supposes that the contamination was from off-loading at the railroad. The practice in the old days was to disconnect the hoses and let them drain out.

Work was done on both sides of the railroad. There is a concrete apron now from the building to the railroad.

He estimates that the contaminated area was approximately 6 to 8 feet in depth, several hundred feet in length, and 10 to 15 feet in width. The contaminated soil was discolored and had a different texture (kind of clayey). The excavated holes were approximately 8 feet deep. They dug until the soil was determined to be clean by either HNU or sampling. His files have the standards that they used. The closure report gives the rationale for the methods used.

While discoloration may have extended only a foot or so, apparently the HNU or sampling read/indicated deeper contamination and thus further digging and removal was carried out.

cc/cosden/cl

CONTACT REPORT

AGENCY/AFFILIATION: Orange County		
DEPARTMENT: Environmental Health		
ADDRESS/CITY: 515 North Sycamore, Santa Ana		
COUNTY/STATE/ZIP: Orange County, California 92701		
CONTACT(S)	**TITLE**	**PHONE**
1. Ken Regrier	Occupational Health	(714)834-7717
2. Bill Dieckman	Toxics	(714)834-8183
E & E PERSON MAKING CONTACT: Lorene Flaming		**DATE:**6/13&7/8/88
SUBJECT: tank fires		
SITE NAME: Cosden and Oil Chemical Company		**EPA ID#:** CAD000097634

Conversation with Ken Regrier on 7/8/88:

Both the 1978 and 1982 incident involved fires, not explosions, although chemical vapors were released. Styrene is rather insoluble, and he does not remember any large quantities of it released through the stream of water used to cool the tanks. Although the fire department called for evacuation, he does not feel styrene was significantly above the threshold limit. Tanks were buried in backfill and loose aggregate. The 1978 tank was below ground. The 1982 tank was above ground and a cylinder tank measuring 32 feet by 10 feet for a total volume of 780 cubic feet.

Conversation with Bill Dieckman on 6/13/88:

No file could be found under this name but he recalled the incident. In 1982, some polymerized styrene was released to the flood channels but the quantity was minimal. The majority of the material hardened within the tank, which was eventually removed.

Information concerning the 1978 spill is scarce or nonexistent. No good records were kept at the time. It involved the exact same type of reaction except the tank was undergruond. These incidents pose a vapor or explosion problem more than a groundwater threat because this type of reaction solidfies the waste into a "plastic blob."

cc/cosden/cl

APPENDIX B

PHOTODOCUMENTATION

FIELD PHOTOGRAPHY LOG SHEET

DATE: 10-13-89

TIME: 11:48 AM

DIRECTION:

South

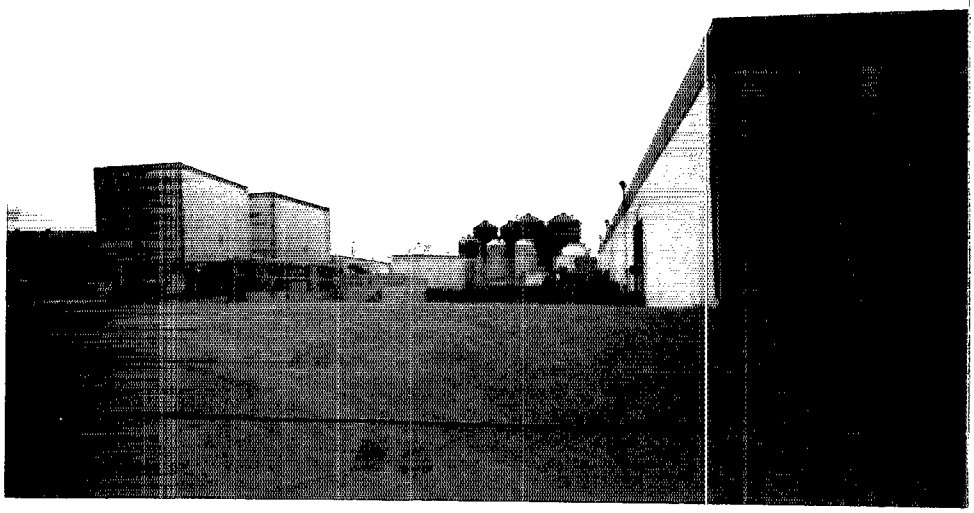
WEATHER: Over-

cast, hazy, ~70°

PHOTOGRAPHED BY:

C. Cauz

DESCRIPTION:



Silos containing polyethylene pellets; railroad to west (just beyond auto); office building to the east.

DATE: 10-13-89

TIME: 11:50 AM

DIRECTION:

South-southwest

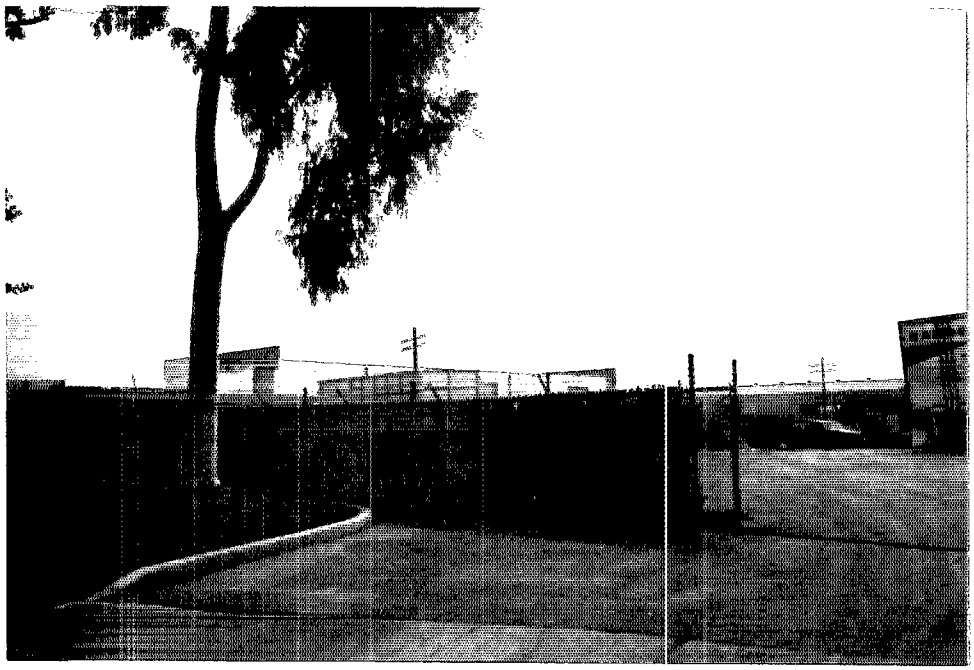
WEATHER: Over-

cast, hazy, ~70°

PHOTOGRAPHED BY:

C. Cauz

DESCRIPTION:



Automatic electric gate; railroad tracks just west of fence running north-south.

cc/cosden/fpls

APPENDIX C

DOCUMENTATION OF SOIL

CONTAMINATION REMEDIATION (STAGE 1)

DOCUMENT SOURCE

_____ DOHS

_____ OCD

_____ OTHER

DATE _____

REPORT OF INVESTIGATION AND MITIGATION OF SOIL CONTAMINATION ENCOUNTERED DURING GRADING OPERATIONS AT NURSERY SUPPLIES, INC., CITY OF ORANGE, CALIFORNIA

July 1, 1986

Project No. 2850974-05

Prepared For:

NURSERY SUPPLIES, INC.
534 West Struck Avenue
Orange, California 92667

ATTENTION: Mr. Ted Guarriello

LEIGHTON and ASSOCIATES
INCORPORATED
SOIL ENGINEERING GEOLOGY GEOPHYSICS GROUND WATER HAZARDOUS WASTES

L&A CELEBRATES 25 YEARS 1986

July 1, 1986

Project No. 2850974-05

TO: Nursery Supplies, Inc.
534 West Struck Avenue
Orange, California 92667

ATTENTION: Mr. Ted Guarriello

SUBJECT: Report of Investigation and Mitigation of Soil Contamination Encountered During Grading Operations at Nursery Supplies, Inc., City of Orange, California

Introduction

In accordance with your authorization, Leighton and Associates, Inc. has conducted an investigation of soil contamination encountered during grading operations at the above-referenced site as well as assessment during mitigation. The purpose of our work was to evaluate the extent and nature of contamination, provide recommendations for mitigation and to observe and test for contamination during mitigation (removal of soil and aeration). The work was conducted during site grading activities related to concrete parking/storage/access road improvements.

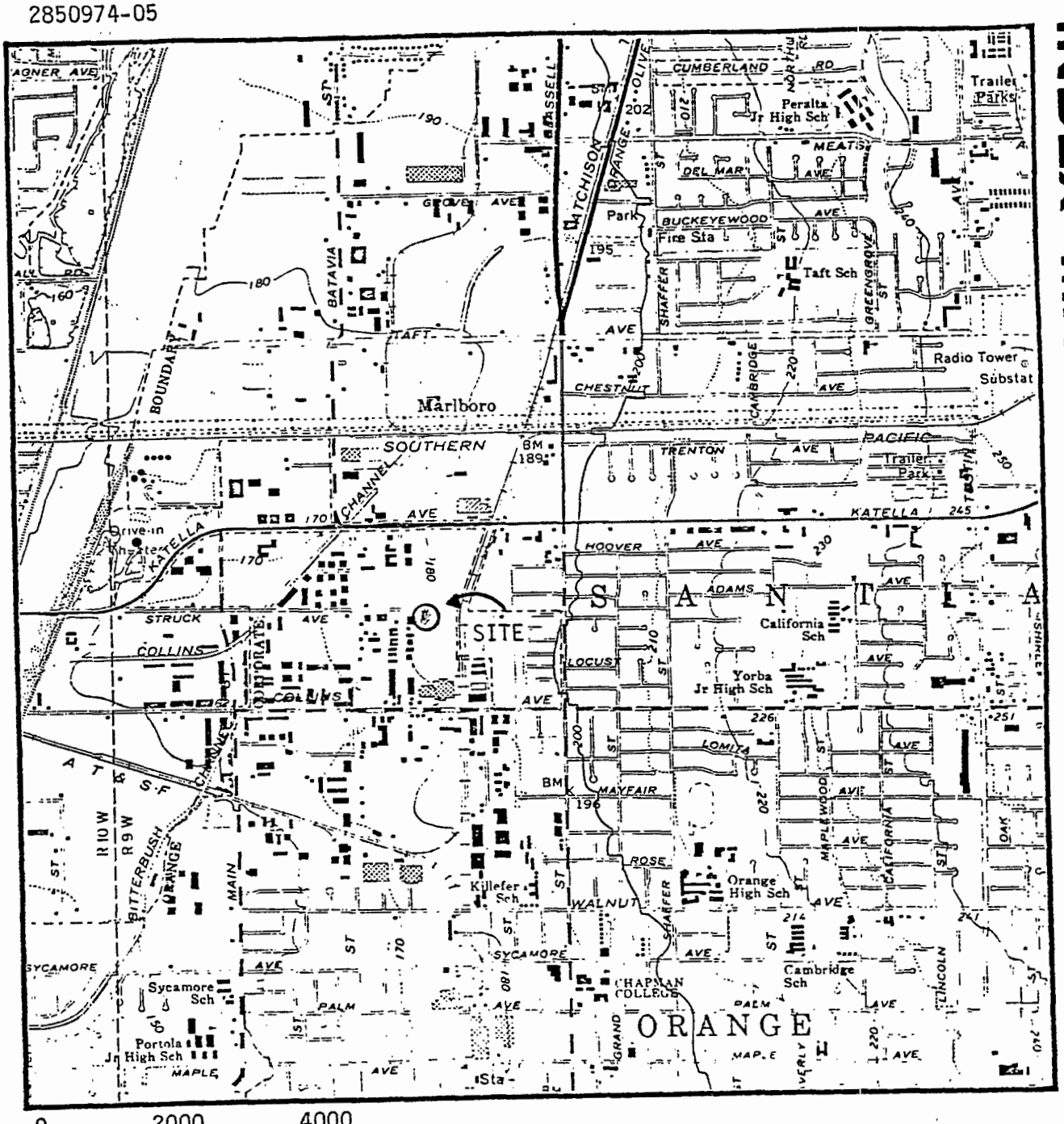
This report presents the results of our investigation and mitigation of contaminated soil encountered during grading. Two additional areas adjacent to the graded area were identified as contaminated by styrene and ethyl benzene. These areas will require additional evaluation and mitigation and are discussed fully in the recommendations section of this report.

Accompanying Map, Illustrations and Appendices

Index Map (2000-scale) - Page 2
Plate 1 - Site Plan (40-scale) - In Pocket
Plate 2 - Sample Locations for Aerated Soil (no scale) - Back of Report
Appendix A - Laboratory Test Results and Letter from AQMD
Appendix B - Trench Logs

2850974-05

INDEX MAP



0 2000 4000
scale feet

INDEX MAP
OF
534 STRUCK AVENUE
CITY OF ORANGE, CALIFORNIA
(Subject Site Shown in Yellow)

BASE MAP: USGS Orange Quadrangle

LEIGHTON and ASSOCIATES
INCORPORATED

Site Description

The subject site is located directly south of the east end of Struck Avenue. An office building and manufacturing warehouse, surrounded by a paved parking lot is located on the northwest section of the property. On the east side of the property there is a railroad spur which runs the length of the site. The west side of the site (approximately 4.1 acres) is open land, a portion of which is used for storage of plastic plant containers.

The facility manufactures the plastic plant pots using styrene beads which are pressed in molds to form the end product. The styrene beads are shipped in by rail car. The facility does not handle any liquid chemicals.

Background

Nursery Supplies Inc. was conducting site improvements in September, 1985. The improvements included removal of existing asphaltic concrete (A/C) pavement along the easterly and southerly side of the facility and replacement with concrete paving. The undeveloped area south of the building and west of the loading dock was also to be covered with a concrete slab for use as a storage area (see Plate 1).

Following removal of the A/C pavement, conventional grading operations were being conducted to establish the subgrade elevations for placing concrete. Initial grading occurred in the roadway area east of the building (Area 1). Soils were removed to subgrade elevation and temporarily stockpiled adjacent to the loading dock.

On September 17, 1985, during routine soil testing for compaction purposes in the roadway area, possible soil contamination was found at subgrade levels.

Nursery Supplies, Inc. does not handle hazardous materials; however, the previous owner manufactured plastics and was contacted by Nursery Supplies Inc. in conference call with a representative of this office.

The previous owner reported that they used styrene monomer and ethyl benzene in the manufacturing process. These chemicals were brought in by rail tanker and pumped to underground tanks (Area 2 on Plate 1). There were no unloading operations or above ground storage of chemicals in the area of the roadway excavation (Area 1) where contamination was found.

Following a fire in 1982, the underground storage tanks were removed and the plant closed. The tank removal operation was approved by the City of Orange Fire Department.

Field Investigation

Area 1

On September 18 and 19, 1985, Leighton and Associates conducted a survey of Area 1 soils using a HNU Photoionization Detector (PID). The results of that survey

are shown on Plate 1. Two contaminated areas were identified (areas of T-1 and T-2 on Plate 1). The remainder of the area had background PID readings of 0 to 6 parts per million (ppm). The area of T-1 had a highest reading of 350 ppm and the area of T-2 had a highest reading of 60 ppm. A trench was excavated at each location to assess the vertical and lateral extent of contamination.

Trench 1 was excavated at the area of the 350 ppm reading (see Plate 1). Contaminated soil was excavated and stockpiled in Area 5 (see Plate 1). Contaminated soil extended to 6 feet in depth. The final dimensions of T-1 were approximately 9 feet wide by 35 feet long with a maximum depth of 8 feet and an average depth of 2 or 3 feet. Following removal of contaminated soil, a sample was taken from the bottom of the trench and analyzed for styrene and ethyl benzene. The sample tested as none detected, less than 0.1 ppm for both styrene and ethyl benzene (test results included as Appendix A, sample S-1-8').

Trench 2 was excavated at the area of the 60 ppm reading (see Plate 1). Contaminated soil was excavated and also stockpiled in Area 5 (see Plate 1). Contaminated soil extended to approximately 3 feet in depth. The dimension of the trench was approximately 5 feet wide by 25 feet long. Following removal of contaminated soil, a sample was taken from the bottom of the trench and analyzed for styrene and ethyl benzene. The sample tested as none detected, less than 0.1 ppm for both styrene and ethyl benzene (test results included as Appendix A, sample S-2 at 4').

Trenches 1 and 2 were excavated along the east edge of the area to be paved. Contaminated soil was noted in the east sidewall of each trench adjacent to the railroad spur. This soil was not removed so as to allow grading and construction of the roadway to continue. To prevent contamination from migrating laterally beneath the new pavement, both trenches were backfilled with a concrete slurry rather than compacted soil.

After excavation, sampling and testing of the trenches, Leighton and Associates met with Nursery Supplies Inc. and Mr. John Hills of the Health Care Agency for Orange County at the site on September 20, 1985. The above conditions were reviewed with the Health Care Agency and verbal approval for the work to date was received. It was also agreed that the soils which had been temporarily stockpiled adjacent to the loading dock during grading in the contaminated area would also be removed and stockpiled in Area 5.

Nursery Supplies, Inc. proposed to aerate the contaminated soil on site in Area 5 to reduce the level of contamination. Mr. John Hills indicated that authorization for that procedure was within the jurisdiction of the South Coast Air Quality Management District (AQMD). The necessary approval was obtained from AQMD (copy of letter included in Appendix A).

On September 23, 1985, a composite sample was collected from the stockpiled soils in Area 5 (from Trenches T-1 and T-2) and tested to provide an initial baseline for aeration. The test results were 29 ppm for styrene monomer and 12 ppm for ethyl benzene (a copy of the test results are included in Appendix A, sample Comp-1, Trench Stock Pile).

Area 2

Following the finding of contaminated soil in Area 1, Leighton and Associates provided observation and testing services during the remainder of the grading using the PID. On September 25, 1985, during grading operations to prepare the subgrade for concrete placement in the area of the former tank cavity, two small (approximately 2 feet in diameter) areas were found that exhibited readings of 30 ppm on the PID. Although this tank excavation had been approved by the City of Orange Fire Department, two trenches were excavated from 17 to 18.5 feet deep to below the bottom of the former tank cavity (trenches T-3 and T-4). Soil samples were collected at depths of 3, 6, 9, 12, 15, 17 feet in T-3 and T-4 as well as 18.5 feet in T-3. Each sample was checked with the PID; all samples registered 0 on the PID. From logging and observation of the trench wall it was clear that local loose debris and soil had been pushed locally onto the top of the tank cavity at the end of prior backfilling operations. This material was removed and added to the stockpiled soils in Area 5.

Area 3

Also on September 25, 1985, some contamination was noted by the loading dock. The area registered 85 ppm on the PID. Trench T-5 was excavated at this area. Trench T-5 was approximately 6 feet wide by 20 feet long and a maximum depth of 3 feet. The soil was stockpiled in Area 5.

A composite sample was collected from the bottom of the excavation and analyzed for styrene monomer and ethyl benzene. The test results were none detected, less than 0.1 ppm for both styrene monomer and ethyl benzene (lab results included in Appendix A, sample T-5 Comp. 1 at 3').

Area 4

On September 27, 1985, some contamination was noted in another area adjacent to the loading dock. Trench 6 was excavated at this area. Trench T-6 was approximately 10 feet wide by 24 feet long and a maximum depth of 3 feet. The soil was stockpiled in Area 5.

A composite sample was collected from the bottom of the excavation and analyzed for styrene monomer and ethyl benzene. The test results were none detected, less than 0.1 ppm for both styrene monomer and ethyl benzene (lab results included in Appendix A, sample T-6 Comp at 3').

No other contaminated soil was found during the grading operations at Nursery Supplies, Inc.

Aeration of Contaminated Soil

Following the stockpiling of contaminated soils in Area 5, the soils were spread in the large open space available in Area 5 to aerate and evaporate the styrene and ethyl benzene. The material was periodically turned to enhance the aeration process.

On November 15 and 18, 1985, composite soil samples were collected from the aerated soil. No contamination was detected with the PID. Composite samples were also collected from the underlying natural soil. Locations of composite samples are shown on Plate 2. Test results for all composite samples were none detected, less than 0.2 ppm for styrene and none detected, less than 0.1 ppm for ethyl benzene.

Soil and Ground Water

Soils at the site are alluvial deposits consisting of mixtures of silts, sands, gravels and cobbles. No ground water was encountered. Ground water information was obtained from the Orange County Flood Control Department and indicates that the water table is approximately 70 feet below the ground surface in this area.

Conclusions and Recommendations

1. Contaminated soil was encountered during grading and construction of associated improvements at Nursery Supplies, Inc. Contaminated soils were removed from the area under grading and stockpiled in the southwest part of the site (Area 5). Following removal of the contaminated soils, samples were collected from the bottom of the excavations and tested for styrene and ethyl benzene. The test results were none detected.

2. The stockpiled soils were spread and aerated in Area 5 following approval for this procedure from the AQMD. After aeration the aerated soil as well as the underlying native soil were tested for styrene and ethyl benzene. Test results were none detected. Based on these results, contamination has fully volatilized from the soil.

3. No other areas of contaminated soil were encountered during site improvements.

4. The contaminated soil in the Area of T-1 and T-2 was fully removed beneath the new roadway. Due to construction logistics removal did not extend east of the roadway during grading. The contaminated soil next to these two areas should be removed and replaced with clean material.

We trust this provides you with the necessary information. If you have any questions, please contact us at you convenience.

Respectfully submitted,

LEIGHTON AND ASSOCIATES, INC.

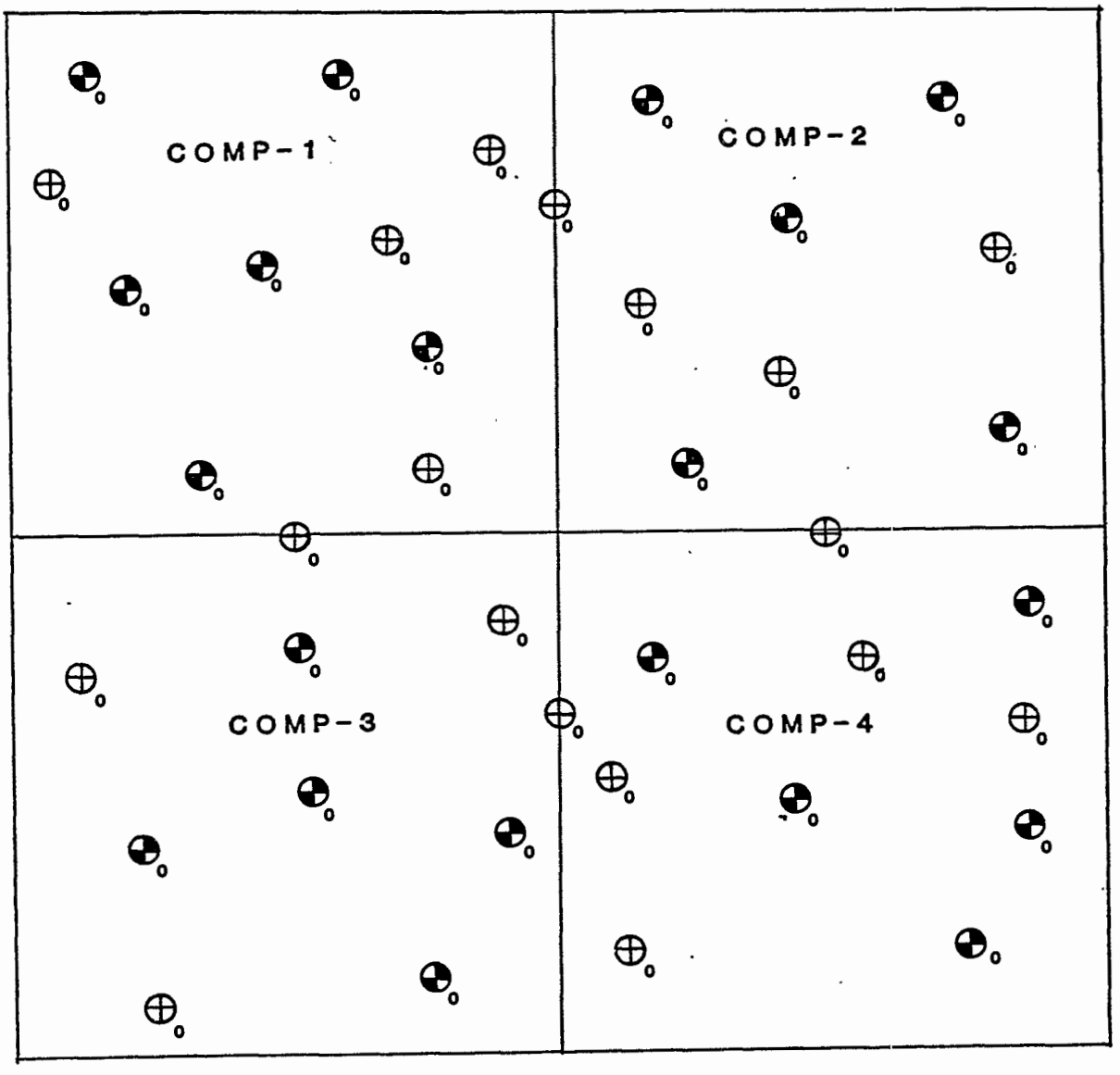
John H. Hansen, CEG 1082
Chief Engineering Geologist

Thomas E. Mills
Manager, Hazardous Materials Division

RDR/JHH/TM/rsm

Distribution: (2) Addressee

(2) Health Care Agency, County of Orange
Attention: Mr. John J. Hills



LEGEND

- ◒₀ NATURAL SOIL COMPOSITE SAMPLE LOCATION AND AERATING SOIL COMPOSITE SAMPLE LOCATION WITH PID MEASUREMENT.
- ⊕₀ AERATING SOIL COMPOSITE SAMPLE LOCATION WITH PID MEASUREMENT.

PLATE

SAMPLE LOCATION
FOR AERATED SOIL

Proj: 2840974-03 Scale: NONE Date: 7/1
Engineer/Geologist: JHH/TM Drafting By: RDR
LEIGHTON and ASSOCIATES, I

ASSOCIATED LABORATORIES
806 North Batavia - Orange, California 92668 - 714/771-6900

RECEIVED
SEP 24 1985
LEIGHTON & ASSOC INC

CLIENT

Leigton & Associates
1151 Duryea Avenue
Irvine, Ca. 92714

LAB NO. F10338

REPORTED 9/20/85

SAMPLE Soil

RECEIVED 9/19/85

IDENTIFICATION NS S-1-8' 9/19

BASED ON SAMPLE As Submitted

Ethyl Benzene	ND <0.1 ppm
Styrene	ND <0.1 ppm

ASSOCIATED LABORATORIES

Edward S. Behare, Ph.D.

ESB/rg

ASSOCIATED LABORATORIES
806 North Batavia - Orange, California 92668 - 714/771-6900

RECEIVED
SEP 24 1985
LEIGHTON & ASSOC INC

CLIENT

Leighton & Associates
1151 Duryea Avenue
Irvine, Ca. 92714

LAB NO. F10356

REPORTED 9/23/85

RECEIVED 9/20/85

SAMPLE Soil

IDENTIFICATION Nursery Supplies S-2 @ 4'

BASED ON SAMPLE As Submitted

Styrene Monomer	ND <0.1 ppm
Ethyl Benzene	ND <0.1 ppm

ASSOCIATED LABORATORIES

Edward S. Behare, Ph.D.

ESB/jg

ASSOCIATED LABORATORIES
806 North Batavia - Orange, California 92668 - 714/771-6900

CLIENT

Leighton & Associates
667 Brea Canyon Rd-Suite 31
Walnut, Ca. 91789
Attn: Bob Reynolds

LAB NO. F10459

REPORTED 9/26/85

RECEIVED 9/24/85

SAMPLE Soil

IDENTIFICATION NSL 9/24

BASED ON SAMPLE As Submitted

	STYRENE	ETHYL BENZENE
Comp-1, Trench Stock Pile	29 ppm	12 ppm
Comp-2, Stock Piles 1,2,3	ND <0.2 ppm	ND <0.1 ppm

ASSOCIATED LABORATORIES

Edward S. Behare, Ph.D.

ESB/rg

RECEIVED
SEP 30 1985
LEIGHTON & ASSOCIATES

1) RDK

ASSOCIATED LABORATORIES
806 North Batavia - Orange, California 92668 - 714/771-6900

CLIENT

Leighton & Associated
667 Brea Canyon Rd-Suite 31
Walnut, Ca. 91789
Attn: Bob Reynolds

LAB NO. F10746

REPORTED 10/4/85

SAMPLE Soil

RECEIVED 10/2/85

IDENTIFICATION Nursery Supplies T-5 Comp. 1 @ 3'
Project #280974-05

BASED ON SAMPLE As Submitted

Styrene	ND <0.1 ppm
Ethyl Benzene	ND <0.1 ppm

ASSOCIATED LABORATORIES

Henry M. Espoy

HME/rg

RECEIVED
OCT - 7 1985
LEIGHTON & ASSOCIATES

TESTING & CONSULTING
Chemical •
Microbiological •
Environmental •

ASSOCIATED LABORATORIES
806 North Batavia - Orange, California 92668 - 714/771-6900

CLIENT

Leighton & Associates
1151 Duryea Avenue
Irvine, Ca. 92714

LAB NO. F10780

REPORTED 10/4/85

SAMPLE Soil

RECEIVED 10/2/85

IDENTIFICATION Nursery Supplies F6 T6 Comp @ 1-3'
Project #2840974-05

BASED ON SAMPLE As Submitted

Styrene	ND <0.1 ppm
Ethyl Benzene	ND <0.1 ppm

ASSOCIATED LABORATORIES

Henry M. Espoy

HME/rg

RECEIVED
OCT 07 1985
LEIGHTON & ASSOC INC

ASSOCIATED LABORATORIES
806 North Batavia - Orange, California 92668 - 714/771-6900

CLIENT

Leighton & Associates
667 Brea Canyon Road
Suite 31
Walnut, Ca. 91789
Attn: Bob Reynolds

LAB NO. F12332

REPORTED 11/22/85

SAMPLE Soil

IDENTIFICATION As Shown Below

BASED ON SAMPLE As Submitted

RECEIVED 11/18/85

	STYRENE	ETHYL BENZENE
Comp-1 1/15	ND<0.2ppm	ND<0.1ppm
Comp-2 11/18	ND<0.2ppm	ND<0.1ppm
Comp-3 11/18	ND<0.2ppm	ND<0.1ppm
Comp-4 11/18	ND<0.2ppm	ND<0.1ppm
Comp-1,2A 11/18	ND<0.2ppm	ND<0.1ppm
Comp-3,4B 11/18	ND<0.2ppm	ND<0.1ppm

ASSOCIATED LABORATORIES

Edward S. Behare Ph.D.

ESB/la

RECEIVED
NOV 25 1985
LEIGHTON & ASSOCIATES

TESTING & CONSULTING
Chemical •
Microbiological •
Environmental •

South Coast
AIR QUALITY MANAGEMENT DISTRICT
9150 FLAIR DRIVE, EL MONTE, CA 91731 (818) 572-6200

October 4, 1985

Mr. John H. Hansen, Chief Engineering Geologist
Leighton and Associates Inc.
667 Brea Canyon Road Suite 31
Walnut, California 91789

Dear Mr. Hansen:

Reference is made to your letter of October 2, 1985 and our meeting on October 2, 1985 regarding the excavated contaminated soil at Nursery Supplies, 534 West Struck Avenue, Orange, California. Based on the information you have provided, it is my understanding that approximately 450 cubic yards of contaminated soil have been stockpiled on the property due to the grading operation and the owner wants to land farm the material on site to reduce the contamination level. In addition, the contamination is due to styrene monomer and ethyl benzene and current average concentrations vary between 1 to 150 ppm for the six stockpiles.

While the District would prefer that the organic contamination not be evaporated into the air, the proposed land farming operation does not require a permit from the District. If Nursery Supplies decides to proceed with the evaporation operation, care should be taken to ensure that a violation of Rule 402 (Nuisance) or Rule 403 (Fugitive Dust) does not occur. A copy of both rules is enclosed for your information. In addition, the District would appreciate being notified when the operation commences and ceases.

If you have any questions, please call the undersigned at (818) 572-6176.

Very truly yours,

Sanford M. Weiss
Director of Engineering

Fred E. Lettice
Supervising A. Q. Engineer

FEL

Enclosures

501-A - (3/77)

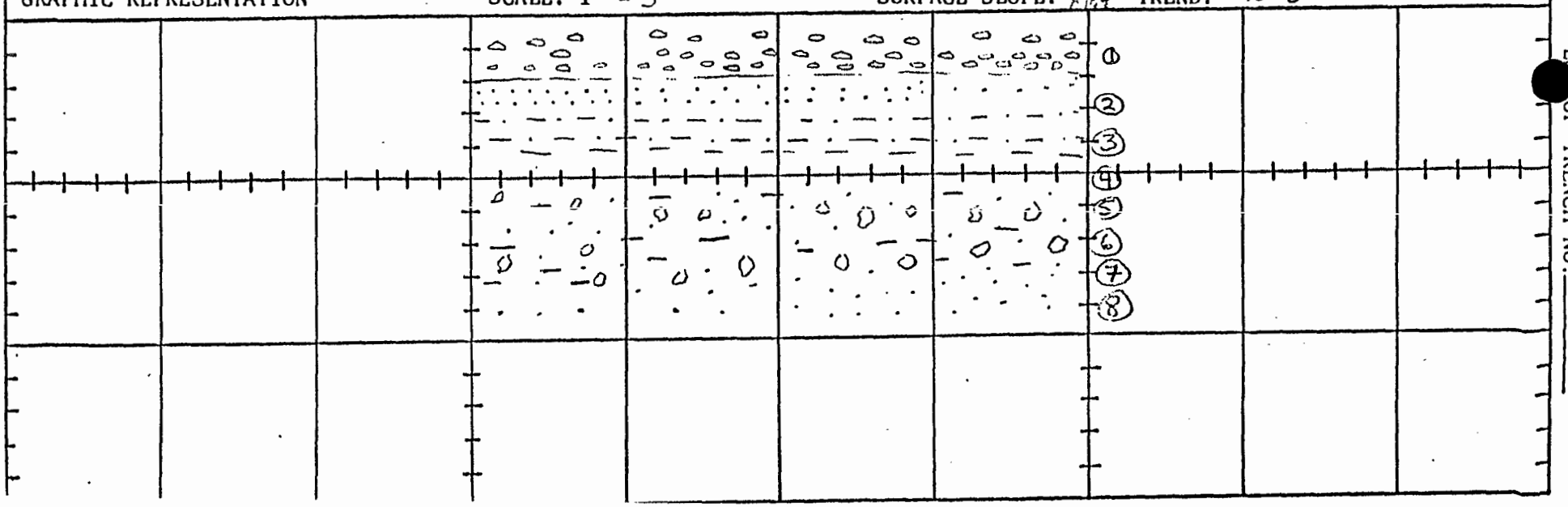
Project Name: Nursery Supplies
Project Number: 284097405
Equipment: Backhoe

Logged By: BDR
Elevation: 193 ft.
Location: East Wall

TRENCH NO. T-1

GEOLOGIC ATTITUDES PID	DATE: 9-19-85 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES U.S.C.S.	Sample No.	P.I.D.	Density (pcf)
	0-2 Railroad Ballast			1 @ 1'	300	
	2-3 Fine to coarse sand			2 @ 2½'	30	
	3-4.5 Red Clay			3 @ 3'	10	
	4.5-8 Gravelly, clayey fine to coarse sand with some cobbles.			4 @ 4'	10	
				5 @ 5'	6	
				6 @ 6'	1	
				7 @ 7'	0	
				8 @ 8'	0	

GRAPHIC REPRESENTATION SCALE: 1" = 5' SURFACE SLOPE: Flat TREND: N-S



LOG OF TRENCH NO: T-1

Leighton & Associates

501-A - (3/77)

Project Name: Nursery [illegible]
Project Number: [illegible]
Equipment: [illegible]

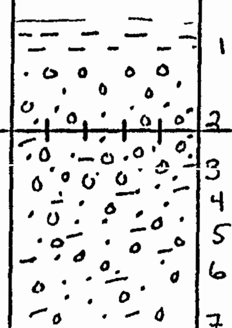
Logged By: ROR
Elevation: 183 ft.
Location: South Wall

TRENCH NO. T-1

GEOLOGIC ATTITUDES	DATE: 9-19-85	DESCRIPTION:	GEOLOGIC UNIT	U.S.C.S.	Sample No.	P.I.D.	Density (pcf)
	0-1'	Red clay			1@1'	5	
	1-8'	Gravelly, Clayey Fine to Coarse Sand with some cobbles, Moist, Reddish Brown			2@3'	5	
					3@4'	2	
					4@5'	0	
					5@6'	0	
					6@7'	0	
					7@8'	0	

ENGINEERING PROPERTIES

GRAPHIC REPRESENTATION SCALE: 1" = 5' SURFACE SLOPE: Flat TREND: N-S



Leighton & Associates

LOG OF TRENCH NO. T-1

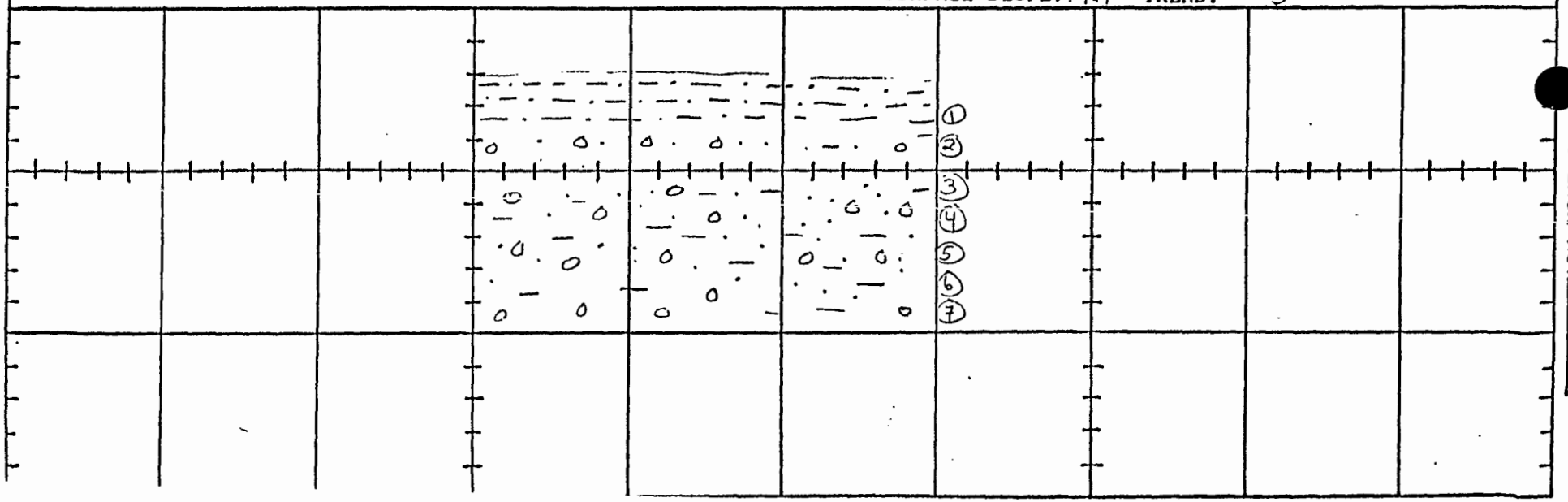
Project Name: Nursery Supplies
Project Number: 2840974-05
Equipment: Back Hoe

Logged By: ROR
Elevation: 183 ft.
Location: West Wall

TRENCH NO. T-1

GEOLOGIC ATTITUDES	DATE: 9-19-85 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES U.S.C.S.	Sample No.	P.I.D.	Density (pcf)
	0 - 1½' Red Clay 1½' - 8' Gravelly, Clayey Fine to coarse sand with some cobbles, Moist, Reddish Brown.			1@1' 2@2' 3@3' 4@4' 5@5' 6@6' 7@7'	5 5 5 - - 0 0	

GRAPHIC REPRESENTATION SCALE: 1" = 5' SURFACE SLOPE: Flat TREND: NS



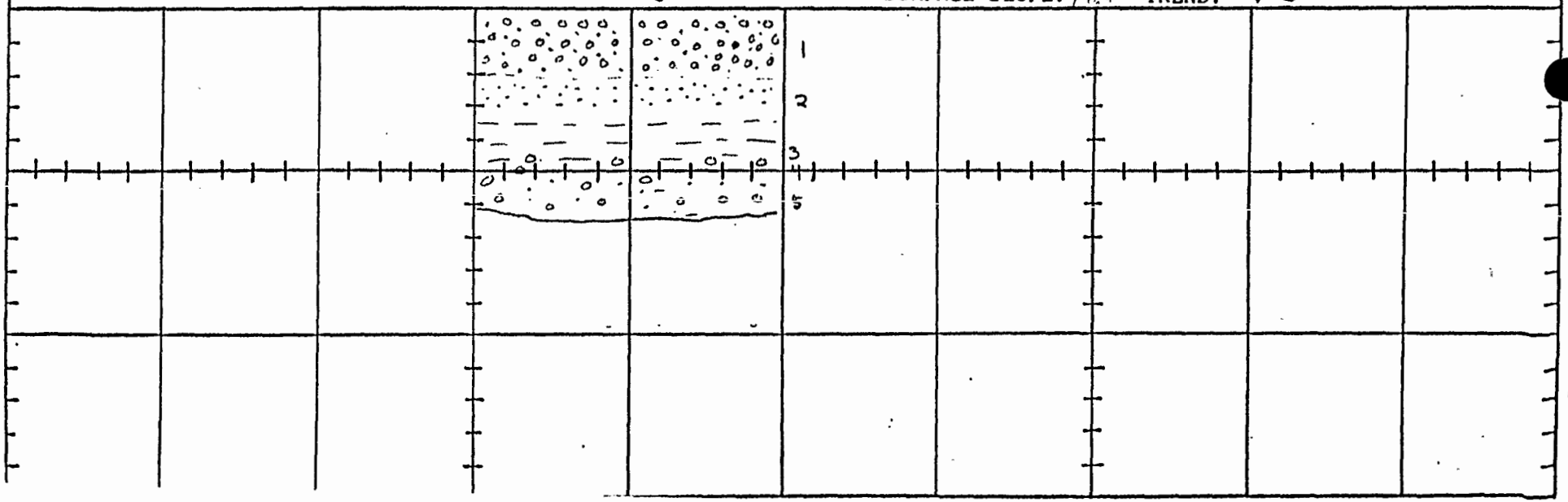
LOG OF TRENCH NO: T-1

501-A - (3/77) Leighton & Associates

Project Name: Nursery Supplies
Project Number: 2840974-05
Equipment: Back Hoe
Logged By: RDR
Elevation: 183 ft.
Location: East Wall
TRENCH NO. T-2

GEOLOGIC ATTITUDES	DATE: 9-19-85 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES U.S.C.S.	Sample No.	P.I.D.	Density (pcf)
	0-2 Railroad Ballast			1 @ 1'	60	
	2-3 Fine to Coarse Sand, damp, Gray-Yellow			2 @ 2½'	25	
	3-4½ Red Clay			3 @ 4'	8	
	4½-6 Gravelly, Fine to Coarse Sand, with Some Cobbles, Moist, Reddish Brown.			4 @ 5'	1	
				5 @ 6'	0	

GRAPHIC REPRESENTATION SCALE: 1" = 5' SURFACE SLOPE: Flat TREND: NS



LOG OF TRENCH NO: T-2

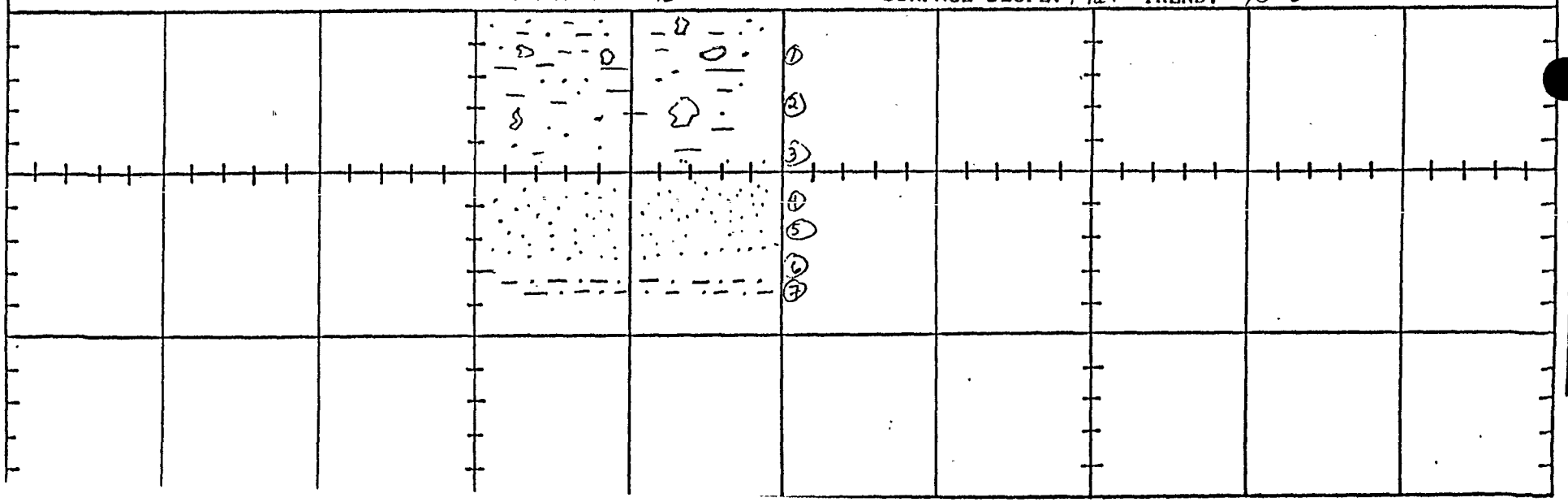
501-A - (3/77) Leighton & Associates

501-A - (3/77)

Project Name: Nursery Supplies
Project Number: 2850774-05
Equipment: Backhoe
Logged By: RDR
Elevation: ≈ 180'
Location: See Map
TRENCH NO. T-3

GEOLOGIC ATTITUDES	DATE:	DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: U.S.C.S.	Sample No.	Moisture (%)	Density (pcf)
		0-10' Fill material, Dark to olive green, damp, clayey sand, with gravel, concrete debris, wood debris, pipes.			1@3'	0	
					2@6	0	
					3@9	0	
					4@12	0	
					5@15	0	
		10-16' Tan, moist, silty U. fine to coarse sand,			6@17	0	
					7@18.5	0	
		16'-18.5' Reddish Brown, moist, silty clay. roots.					

GRAPHIC REPRESENTATION SCALE: 1" = 10' SURFACE SLOPE: Flat TREND: N-S



LOG OF TRENCH NO: _____

Leighton & Associates

501-A - (3/77)

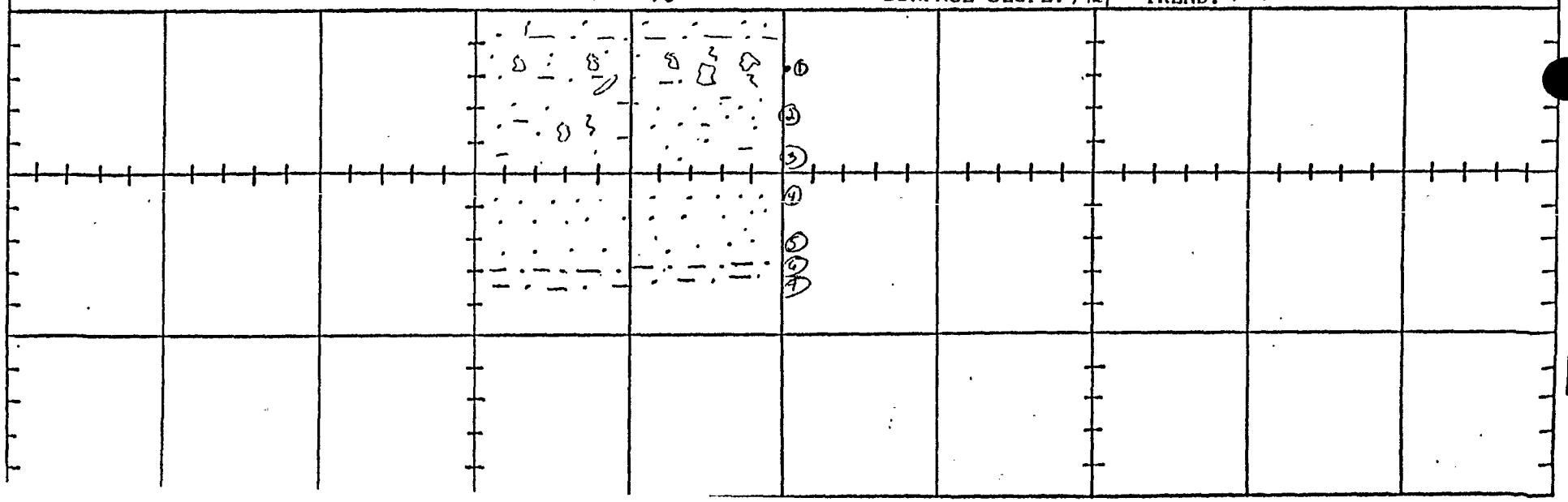
Project Name: Nursery Supplies
Project Number: 2850974-05
Equipment:

Logged By: RDR
Elevation: ≈180
Location: See Map

TRENCH NO. T-4

GEOLOGIC ATTITUDES	DATE:	DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES U.S.C.S.	Sample No.	Moisture (%)	Density (pcf)
	0-10'	Fill material, Dark to olive Green, damp, clayey sand with gravel, concrete debris, wood debris, pipes.			1@2.5'	0	
					2@6'	0	
					3@9'	0	
					4@12'	0	
					5@15'	0	
	10-16'	Tan, moist, silty V. fine to coarse sand.			6@16'	0	
					7@17'	0	
	16-17.5'	Reddish brown, damp, siltyclay. roots					

GRAPHIC REPRESENTATION SCALE: 1" = 10' SURFACE SLOPE: Flat TREND: N40°W



LOG OF TRENCH NO: _____

Leighton & Associates

APPENDIX D

DOCUMENTATION OF SOIL

CONTAMINATION REMEDIATION (STAGE 2)

TOM UR
DIRECT

L. REX EHLING, M
HEALTH OFFI

ENVIRONMENTAL HEALTH DIVIS
ROBERT E MERRYMAN, R. S. M
DEPUTY DIREC

MAILING ADDRESS: P.O. BOX
SANTA ANA, CA 92

County of Orange

HEALTH CARE AGENCY
PUBLIC HEALTH SERVICES
ENVIRONMENTAL HEALTH DIVISION
1725 W. 17TH STREET
SANTA ANA, CALIFORNIA 92706
(714) 834-8356

May 9, 1989

Ted Guarriello
Nursery Supplies, Inc.
534 W Struck Ave.
Orange, CA 92667

Subject: Remedial Action at 534 W. Struck Ave., Orange CA.

Dear Mr. Guarriello:

This is in response to your request for a confirmation of the completion of this remediation project. With the provision that the information provided to this Agency was accurate and representative of existing conditions, it is the position of this office that additional soil remediation of the site will not be required.

It should be pointed out that this letter does not relieve you of any responsibilities mandated under the California Health and Safety Code and California Water Code if existing, additional or previously unidentified contamination at the subject site causes or threatens to cause pollution or nuisance or is found to pose a significant threat to public health.

Additionally, be advised that changes in the present or proposed land use may require further assessment and mitigation of potential public health impacts.

If you have any questions regarding this matter, please contact Gary Zimmerman at (714) 834-7765.

Very truly yours,

John J. Hills

John J. Hills, R.S.
Program Manager
Hazardous Materials Management Program
Environmental Health Division

JJH:lll

cc: Robert Holus, Chief.Santa Ana Regional Water Quality Control Board

93-1-540

COUNTY OF ORANGE
HEALTH CARE AGENCY

TOM URAM
DIRECTOR

L. REX EHLING, M.D.
HEALTH OFFICER

ENVIRONMENTAL HEALTH
ROBERT E MERRYMAN, R. S. MPH
DEPUTY DIRECTOR

MAILING ADDRESS: P.O. BOX 355
SANTA ANA, CA 92702

PUBLIC HEALTH SERVICES
ENVIRONMENTAL HEALTH
1725 W. 17TH STREET
SANTA ANA, CALIFORNIA 92706
(714) 834-8356

DOCUMENT SOURCE
E+E, Inc

OC Health OTHER

DATE 10-23-89

July 19, 1988

Nursery Supplies, Inc.
Mr. Ted Guarriello
534 W. Struck Ave.
Orange, CA 92667

Subject: Soil Contamination at 176 S. Grand Ave., Orange

Dear Mr. Guarriello:

I have recently reviewed our file for the soil remediation project at your facility on S. Grand Street in Orange. The file indicates that on October 21, 1987 you informed Joyce Krall, of this Agency, that the excavations along the railroad tracks have been filled with cement. You also informed her that the soil between the cement and the railroad tracks will be excavated within five months. As of this date, we have not received an update on the status of this project.

Submit to this Agency in writing, a proposal for assessing and mitigating the remaining soil contamination. The proposal should include a final sampling plan that will verify completion of the clean-up and a time frame in which all work will be completed.

All future correspondence should be directed to myself. If you have any questions regarding this matter, please call me at (714) 834-8180.

Very truly yours,

Lee Gjetley

Lee Gjetley
Hazardous Waste Specialist
Waste Management Section
Environmental Health

LG:fp

LEIGHTON and ASSOCIATES
INCORPORATED
L&A
1567 Brea Canyon Road, Suite 31
Walnut, California 91789
(714) 598-2856/(818) 965-4874
(800) 253-4567

JOHN H. HANSEN
Chief Engineering Geologist

ENGINEERING TESTING GEOLOGY GROUND WATER

SITE MITIGATION - SUMMARY TRACKING

Case I.D. No.: 85IC 11

Specialist(s) (date referred): Greco 9-85 | Krall 10-86 | Gjetley 4-88 | Zinn -88

Facility Name: Nursery Supplies, Inc.

Responsible Party: Ted Guarriello

Address: 534 W. Struck Ave.
Orange 92667

Type Of Contamination: Styrene

Media Contaminated: Soil
(air, water, soil)

DATES OF:

1. Initial Investigation: 1985 Site Closure: 5-89
Immediate Corrective Action: N/A

2A. Notice of Contamination Letter Sent: N/A

2B. Site Investigation Plan Received: ______

2C. Letter Of Response For Site Investingation Workplan Sent:
Letter(s) Specifying Deficiencies To Plan Sent: ______
Revised Workplan(s) Received: ______
Letter Of Acceptance Sent: ______

3. Site Investigation Report Recieved: 7-1-86

4. Letter Of Response For Site Investigation Report Sent:
Letter(s) Specifying Deficiencies Sent: ______
Revised Report(s) Received: ______
Letter Of Acceptance Sent: ______

5. ~~Separate~~ Combined Remedial Action And/Or Monitoring Plan Submitted: 7-1-86

6. Letter Of Response For Remedial Action Monitoring Plan Sent:
Letter(s) Stating Deviciencies Sent: ______
Revised Report(s) Submitted: ______
Letter Of Acceptance Sent: ______

7A. Monitoring Reports Received: 5-5-89 Final Lab Results.

7B. Final Closure Report Received: ______

8. Letter(s) Specifying Deficiencies Sent: ______
Revised Plan(s) Sent: ______

9. Final Closure Letter ~~Issued:~~ Typed 5-10-89 Issued ______

10. [illegible] begin new sheet at the appropriate level above

ETE, Inc

SUMMARY SITE CLOSURE RATIONALE

Case I.D.: _____

Facility Name: Nursery Supplies, Inc. OC Health Address: 534 W. Struck Ave

Business Type: Inject. molds. ~~Former Business~~ Occupying Site: Cosden Oil Orange 92667

Contaminant(s): STYRENE DATE 10-23-89

Resources affected: X (Soil) ____ Groundwater N/A Date Closed By Regional Water Quality Control Boar

Extent of Contamination (Lateral And Vertical – Include All Areas Contaminated):

Aeral 200 Ft X 5'

Vertical Surface To 2 Ft. (# Of Borings _____, Deepest Boring TRENCHES 5'

Higest Initial Concentrations (mg/kg) Of Each Contaminant In Soil:

ETHYLBENZENE (Name) > ppm (Conc.) TESTED AERATED SPOIL PILES

STYRENE (Name) > 29 ppm (Conc.)

(Name) (Conc.)

Final Concentrations: EB 0.1 – 2.1 ppm - STYRENE 0.1 – 6.9 ppm.

Estimated Volume Of Soil Treated Or Removed: 5 (Tons) Estimated Volume Of Release: ____ (Gal.)

Location/Topography: _____

Current Adjacent Land Use: INDUSTRIAL Future Land Use: INDUSTRIAL

Depth To Groundwater: 70 Ft. (____ Measured By Borings, X Estimated

Hydrogeologic Conditions: X Forbay ____ Pressure Zone

____ Hills ____ Other _____

____ Adjacent To Or Near O.C.W.D. Recharge Zones

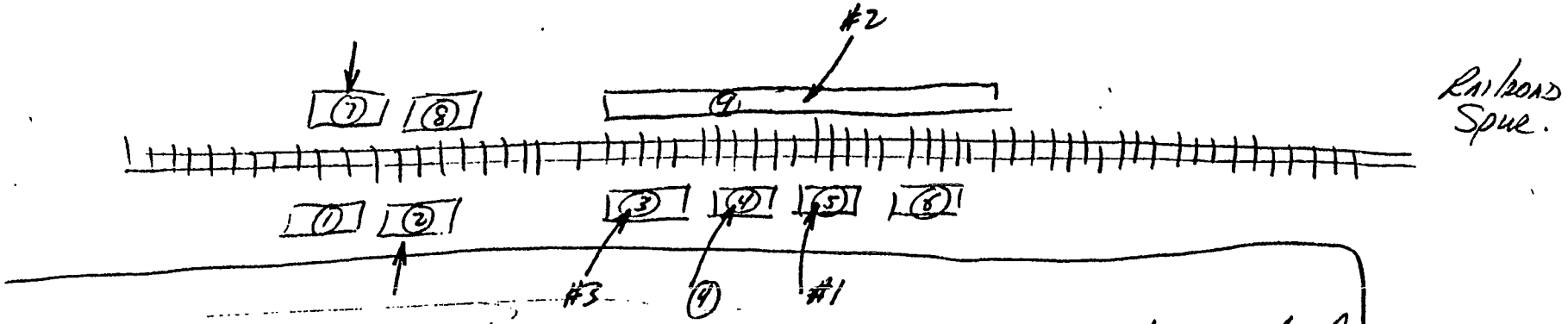
Vadose Zone Media Or Soil Type: SILT, SAND, GRAVEL & COBBLES

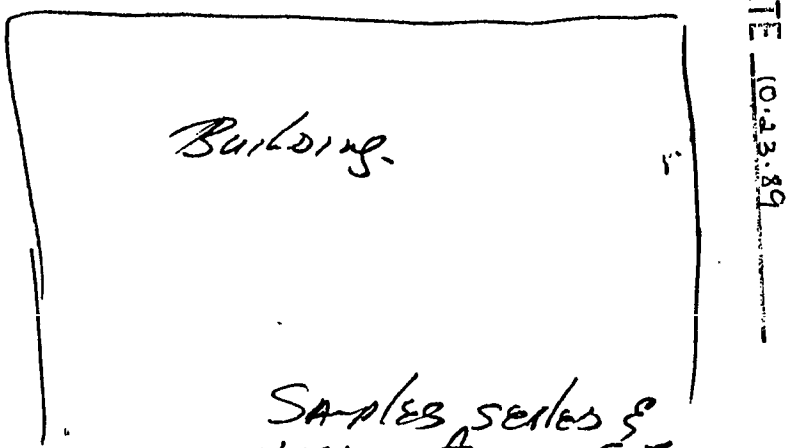
Special Conditions: _____

Describe Cleanup Efforts: EXCAVATION - AERATION - LAND FARMING. BOTH SPOIL AND VERIFICATION SAMPLES TESTED

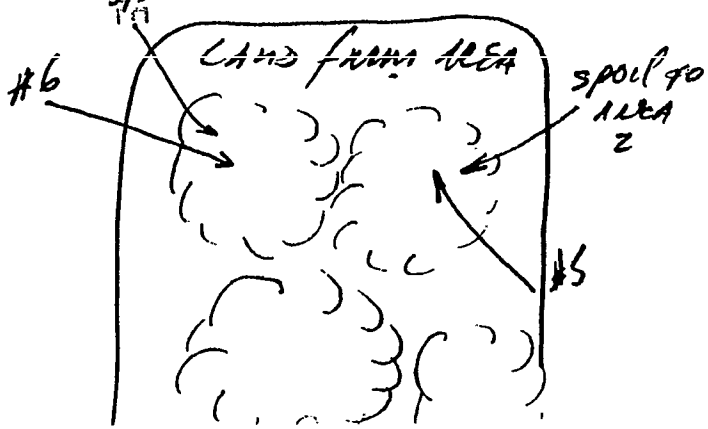
Rationale For Closure: GROUNDWATER ESTIMATED @ 70' FINAL CONCENTRATIONS IN SOIL ARE LESS THAN 1/10 ± OF TLV. INDUSTRIAL USE ONLY. ~~FORMER BUSINESS~~

Nursery Supplies





DOCUMENT SOURCE
ete inc
DATE 10.23.89
OC HEALTH



DOCUMENT SOURCE
Etc., Inc

ASSOCIATED LABORATORIES
806 North Batavia - Orange, California 92668 - 714/771-6900 FAX 714/538-1209

CC Health OTHER

CLIENT

531 0251 Nursery Supplies Inc.
534 W. Struck Avenue
Orange, CA 92667

Attn: Red Guarriello

DATE 10.25.89 LAB NO F62006

REPORTED 04/05/89

SAMPLE Soil

RECEIVED 03/24/89

IDENTIFICATION Sample Location: Nursery Supplies Inc.

BASED ON SAMPLE As Submitted with County Seals Intact

	Ethyl Benzene	Styrene
#1	ND< 0.1 mg/kg	ND< 0.1 mg/kg
#2	1.5 mg/kg	6.9 mg/kg
#3	1.7 mg/kg	6.2 mg/kg
#4	1.7 mg/kg	4.6 mg/kg
#5	2.1 mg/kg	4.6 mg/kg
#6	1.3 mg/kg	3.1 mg/kg

ASSOCIATED LABORATORIES

Edward S. Behare, Ph.D.

ESB/ql

cc: O.C. Health Care Dept.

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 30 days from date reported.

TESTING & CONSULTING
Chemical •
Microbiological •
Environmental •

C-1 1086

32. Smith, Steve, City of Orange Water Department, and Lorene Flaming, E & E FIT, record of telephone conversation, July 7, 1988.

33. Adackapara, Mike, Regional Water Quality Control Board, and Cathleen Cauz, E & E FIT, telephone conversation, September 20, 1989.

34. Smith, Ken E., Orange County Flood Control District, and Cathleen Cauz, Cathleen, E & E FIT, telephone conversation, October 2, 1989.

35. United States Geological Survey, "Water Data Report CA-88-1," 1988.

36. Gala, Ed, City of Orange Planning Department, and Cathleen Cauz, E & E FIT, telephone conversation, September 20, 1989.

37. California Department of Fish and Game, Natural Diversity Data Base, Orange, Anaheim, Newport Beach 1, and Newport Beach 2 Quadrangles, expires April 1, 1990.

38. "Chemical Tanks Rupture; Orange Area Evacuated," Los Angeles Times, by Kennedy, Michael J. and Turner, Craig, August 1978.

39. Cummings, Ginny, EPA, and Cathleen Cauz, E & E FIT, telephone conversation, November 9, 1989.